An Inquiry Based Intervention Methodology for Business Management Problems

by

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This thesis is dedicated to my parents Sothery Mwaluko, and his wife Balbina Sothery. They all taught me that life is a philosophical journey.

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Abstract

In this thesis different reasons for the failure of intervention efforts are explored. These reasons, which are at the level of theory, methodology and method, show that in the field of management intervention, there is a problem arising from conflicting opinions. For instance, at the level of theory, though writers agree that intervention efforts fail because they are based on theories that are inadequate, they differ on what an adequate theory is.

Reasons given at the level of methodology and method also differ. For example, some attribute the failure of intervention efforts to their inability to deal with organizational processes, or organizational design. Yet, others blame the inability of intervention efforts to deal with organizational culture, or organizational politics, for their failure.

A furthermore problem stems from the existence of different intervention methodologies. This presents organizations with the dilemma of not knowing which of these methodologies should be adopted. The main objective of this thesis therefore, is to conduct further research aimed at addressing this problem.

In order to address these problematic issues, a management intervention methodology based on a relatively adequate theory is designed. The design is guided by three interrelated conditions; inquiry must be treated as a philosophical exploration, the output of such treatment should be adopted to develop a theory for management intervention, and design of the methodology must be based on this theory. The last condition ensures that the theory espoused for management intervention corresponds to the theory in use.

In the context of management intervention, treating inquiry as a philosophical exploration is vital because it broadens and enriches the meaning of adequacy of a theory and the associated methodology.

The justification for basing the design of the methodology on these three conditions emanates from an agreement amongst writers that intervention methodologies fail to produce successful results because they are grounded on flawed theories.

This thesis therefore, adopts conditions for designing the methodology, and testing it in the field.

Three resultant conclusions can be drawn. First, the success of an intervention methodology depends on the adequacy of its theory and on the efforts made by the organization to offer training in strategic and operations management to those involved in the implementation. Second, a theory is adequate if it is capable of dealing with all the organic, cultural, and power, characteristics of management problems. Third, an adequate theory can be developed if inquiry is treated as a philosophical exploration.

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General Introduction

Objective of the research

This thesis is about designing an inquiry based intervention methodology for business management problems. In explaining why the thesis views the methodology as inquiry based, it is necessary first to establish the meaning of inquiry and its relation to management intervention.

According to Ferre (1995), the sustained effort of wondering critically about the key issues in philosophy is a philosophical quest. The key issues in philosophy include metaphysics, epistemology and axiology; the theories of reality, knowledge and value respectively. Note that Ferre's notion of wondering critically and the act of inquiry (Churchman, 1971), (Vickers, 1968; 1995), appear to be similar concepts. Drawing from these three writers, inquiry can be perceived as a philosophical exploration.

Hence, this thesis perceives the methodology to be inquiry based because its design is undertaken by treating inquiry as a philosophical exploration. This implies that in designing the methodology, a philosophical approach is adopted. The thesis states that adopting this approach to design an intervention methodology is justifiable because management intervention is a form of inquiry where issues of concern are related to the improvement of organizational performance.

The thesis argues that to have a methodology which is designed by treating inquiry as a philosophical exploration is important, because the adequacy of such a methodology is improved. This enhancement occurs because, adopting a philosophical stance requires a philosophical mind that promotes critical thinking, as Paul (1993) writes, it subjects our outlook and interpretations of ourselves and others to serious examination. Explaining how a philosophical stance promotes critical thinking Paul writes that

> "The philosophical mind.....routinely probes the foundations of its own thought, realizes its thinking is defined by basic concepts, aims, assumptions, and values. The philosophical mind gives serious consideration to alternative and competing concepts, aims, assumptions, and values, enters emphatically into thinking fundamentally different from its own, and does not confuse its thinking with reality....A philosophical mind habitually probes the basic principles and concepts that lie behind standard methods, rules, and procedures. The philosophical mind recognizes the need to refine and improve the systems, concepts, and methods it uses and does not simply conform to them." (Paul, 1993, page 408).

Hence, according to Paul (1993), designing a methodology by treating inquiry as a philosophical exploration requires critical examination of the design process. The thesis argues that adopting a critical approach in the design process produces a methodology, which is cognitively and ethically adequate, making it capable of dealing with all the characteristics of management problems. This is the main reason for treating inquiry as a philosophical exploration.

The thesis perceives business management problems to be typified by three interrelated characteristics; organic, cultural, and power characteristics. Management intervention is therefore, viewed as dealing with these characteristics.

In dealing with organic characteristics, the designed methodology considers: the larger environment, the effects of interaction and feedback between issues related to the management problem, the need for an organization structure to guide the interaction process, and the need to manage uncertainty. In dealing with cultural characteristics, the methodology ensures that all relevant stakeholders are involved in the intervention process, and a shared understanding of all issues related to the problem is created.

Furthermore, in dealing with power characteristics, the designed methodology challenges the adequacy of the existing practices, assumptions, and uncovers any issues related to the ownership of resources, or authority that can make dealing with the organic and cultural characteristics ineffective.

The methodology is meant to help organizations deal with business management problems, so that improvement in the measures of performance can be achieved. It is held that the measures of organizational performance should be determined by the stakeholders involved in, and affected by, the intervention process.

The research process

The preceding discussion focused on the characteristics of the inquiry based intervention methodology and not on how this methodology was developed. This also needs to be discussed.

The research process adopted was divided into three stages; the identification of a research problem, formulation of the framework for management intervention, and testing the framework in a particular context.

Identification of the research problem involved a critical study of the literature on the failure of traditional management intervention efforts to produce successful results. In particular, the identification of the research problem started with a literature review on organizational decline. The main objective was to establish the current thinking about the causes for organizational decline. It was discovered that there are various reasons for organizational decline. It was then concluded that such a discovery suggests first, the existence of various views for the failure of intervention efforts and second, the presence of different intervention methodologies. The identification of the research problem then focused on supporting these claims. This was done by critically studying the literature on the reasons for the failure of intervention efforts and a review of various intervention methodologies proposed by different writers. In both cases it was confirmed that there is lack of agreement among writers, regarding the reasons for the failure of intervention methodologies and the appropriate methodology that organizations should adopt.

This lack of consensus among writers was perceived as an indication of a need for more research in the area of management intervention, aimed at developing an alternative

intervention methodology that is likely to produce successful results. This observation motivated the research.

The development of a framework for management intervention comprised the search for an adequate management intervention theory and the development from it, of an intervention methodology. The search for the theory was done in two stages. The first of these involved treating inquiry as a philosophical exploration. This resulted in the identification of two criteria for adequacy of created knowledge; the relevance and the reliability of created knowledge. The relevance criterion refers to both the utility of the created knowledge and the ability of such knowledge to promote learning. The reliability criterion refers to the internal coherence and consistence of the created knowledge.

The second stage involved the derivation of the critical success factors and sub factors from the adequacy criteria. The critical success factors, which constitute a theory for management intervention, are perceived to be the key issues that an intervention methodology must exhibit if it is to be successful. The derivation of the critical success factors was influenced by Vickers's three fields of inquiry, which are: reality, value, and instrumental judgment (Vickers, 1995; 1968).. It was also influenced by Burrell and Morgan's work on sociological paradigms (Burrell and Morgan, 1979) and that of mature Karl Marx (Burrell *et al,* 1979); (Jackson, 1985). The critical success factors derived include interaction, management judgment, ideological awareness and the exploration of historical conditions.

After the theory for intervention was formulated, the methodology was developed from it. The process was influenced by the work of Pepper (1942) on the structural characteristics of a root metaphor, the work of Bridgman (1992) on the operational meaning of concepts, and the work of Flood and Jackson (1993) on how systemic methodologies are derived from their underlying philosophies.

The third stage of the research involved testing the framework for management intervention in the field. The methodology was used to tackle a business management

problem in a certain organization. It was implemented in two divisions of a motor vehicle components manufacturing company in Port Elizabeth, South Africa. The methodology and its associated theory were further improved on the basis of this practical application. The theory and methodology that appear in this thesis are a result of the improvement.

Thesis layout

This thesis of eight chapters and one appendix is divided into three main parts. Part One, which includes chapters one through four, focuses on the identification of the research problem. Part Two, which includes chapters five, six and seven, focuses on formulation of the research hypothesis. The research hypothesis formulated is in the form of a management intervention framework. Part Three, which includes chapters eight and appendix A, puts the management intervention framework into practice. Some reflections from the fieldwork, regarding the adequacy of the methodology are also discussed in Part Three and in chapter eight in particular. Chapters details next.

Chapter one discusses the various sources of organizational decline. The existence of different theories of decline implies that different views exist about the reasons for the failure of intervention methodologies. It also suggests that there are different views on what the appropriate intervention methodology should be. These two claims are supported in chapters two through four.

In chapter two, related studies on the failure of intervention efforts are discussed. It is shown that reasons for the failure of intervention efforts can be classified into three levels. They include reasons that are at the level of theory, some that are at the level of methodology, and others that are at the level of method, for management intervention. At the level of theory, though writers agree that intervention efforts fail because they are based on inadequate theories, there appears to be no consensus on what should be an adequate theory for management intervention. At the levels of both methodology and method, writers tend to subscribe to different dimensions of organization. Some argue

that intervention efforts should focus on organizational design; others, on organizational culture, or organizational process. Yet other writers propose that intervention efforts should focus on organizational politics.

The conclusion drawn from chapter two is that writers lack consensus regarding the reasons for the failure of intervention efforts. There is also disagreement on the appropriate theory and methodology to be adopted to produce successful results. It is argued that this conclusion supports the claims made in chapter one.

Chapter three discusses performance improvement through transformation of organizational culture. It is shown that though writers in this camp agree on the need to improve performance through transformation of organizational culture, they diverge on how to undertake the culture transformation process. It is shown that some writers focus on transforming culture through organizational design. Others favour changing culture through organizational processes. It is concluded that such a diversity of views and disagreements support the claims made in chapter one.

Chapter four discusses performance improvement through organizational learning and action learning efforts. It is also shown that these approaches subscribe to different dimensions of organization and hence, support the claims made in chapter one.

Part One reveals that the existence of a diversity of views regarding the kind of approach to be adopted in improving performance in organizations indicates that there is a problem. The problem stems from conflicting opinions, and uncertainty in organizations as to which of the proposed approaches is relatively adequate, and hence, should be adopted. In order to deal with this problem it is argued, more research is required to establish the kind of intervention methodology most likely to produce successful results. Part One concludes that this thesis is motivated by that need.

In chapter five, the need to treat inquiry as a philosophical exploration is discussed. It is shown that if inquiry is treated as a philosophical exploration, the knowledge created is

likely to be both cognitively and ethically adequate, hence relevant and with a high degree of reliability. Chapter five concludes that the need to satisfy the criteria of relevance and reliability should guide the development of a theory for management intervention.

In chapter six the relevance and reliability criteria for adequacy of created knowledge are used in developing a theory for intervention in management problems. This theory comprises a list of critical success factors including the manner in which they interact to produce successful results.

In chapter seven the inquiry based intervention methodology is designed, drawing from the theory for management intervention developed in chapter six. A comparison between the inquiry based intervention methodology, and the Total System Intervention (TSI) (Flood and Jackson, 1993), as well as the Local Systems Intervention (LSI) (Flood, 1996), is also made in this chapter.

In chapter eight, a critical appraisal of the inquiry based intervention methodology is, undertaken. The nature of the research method adopted and problems encountered during the field study are discussed in this chapter. The validity of the methodology, and directions for future research aimed at improving the methodology are also examined. Chapter eight concludes that to ensure that the methodology produces successful results, efforts must be taken to train all those stakeholders involved in, and affected by, the intervention process. The training should be in both strategic and operations management. Chapter eight also attributes the success of the intervention methodology to the adequacy of its theory. It is also concluded that an adequate intervention theory can be developed by treating intervention as a philosophical exploration, and that a theory is perceived to be adequate if it is capable of accurately explaining the organic, cultural and power characteristics of management problems.

In Appendix A, the nature of problems facing the South African motor vehicle components sector, are discussed. It is concluded that, given the nature of the problems

this sector is facing, intervention through the inquiry based intervention methodology is recommended. As a result, the inquiry based intervention methodology is applied to improve performance in two divisions of a motor vehicle components manufacturing company based in Port Elizabeth, South Africa.

PART ONE

Identification of the Research Problem

Chapter One. Exploring the Sources of Organizational Decline.

> The attrition rate of companies is spectacular - only around a third of America's 500 leading companies in 1970 still exist today. Even the best companies, terrified that they will end up in this ever more crowded corporate graveyard, are forever reorganizing themselves. (Micklethwalt and Wooldridge, 1997, page 9).

1.1 Introduction

The term "organizational decline" has two principal meanings (Whetten, 1980). First, it is used to denote cutbacks in areas such as the size of an organization's workforce, profits, budget, and on clients. In such a situation, an organization's command over environmental resources has been reduced as a result of either decreased competitive advantage leading to a decrease in market share. The term "organizational decline" is also used to describe the general climate, or orientation in an organization. For instance, Whetten states that some mature organizations become stagnant, bureaucratic and passive and hence, insensitive to new product development, worker's interests and customer preferences. He points out that, depending on the nature of the environment, decline as stagnation does not necessarily imply an absolute decrease in income whilst decline as cutback does.

However, Whetten seems to confuse the causes and consequences of decline. This is due to the fact that depending on the nature of the operating environment, decline as cutback, is normally a consequence of decline as stagnation. An organization insensitive to new product development, worker's interests, and customer preferences is likely to face a cutback in the size of its workforce, profits, budget or clients. In this thesis the term

"organizational decline" refers to decline as cutback characterized by decrease in profitability, productivity, market share and the quality of work life of the employees.

In this chapter the sources of organizational decline are identified and discussed with reference to what is termed here "the theories of organizational decline". These theories explain and describe causes for organizational decline. They include the natural selection, resource based and contingency theories; the theory of misperception of feedback and the theory of referent organization. The chapter also proposes an alternative theory of organizational decline, created by merging the five theories into one.

There are two types of variables that facilitate the discussion of the above theories i.e., environmental, and organizational variables. The discussion is undertaken by identifying the kind of variable(s) the theories consider in explaining organizational decline. The discussion also looks at the manner the considered variables interact in making organizational decline intelligible. Furthermore, the strengths and weaknesses of the various theories of organizational decline are examined.

The discussion on theories of organizational decline is important because a theory of organizational decline and that for management intervention are two sides of the same coin. Understanding the sources of organizational decline may therefore give insights into the nature of intervention efforts needed to avert decline. The existence of many theories of organizational decline therefore predicts that there are also different views on the kind of intervention methodology and associated theory that organizations should adopt to avert decline.

The main objective of this chapter consequently is to establish the claim that since there are different theories of organizational decline in the literature, there are also different intervention methodologies and associated theories. Establishing this claim, which is the main contribution of this chapter, is important if the work done in this thesis is to be justified.

Although theories of organizational decline take different directions in examining the failure of organizations, most of them make use of the organizational environment as raw material for their explanation. The chapter therefore starts discussing the various organizational environments, which, organizations either choose or find themselves operating in.

1.2 Classification of organizational environments

Emery and Trist (1965) identify four different kinds of organizational environments which, they call the causal texture of organizational environments. They write that the simplest type of environmental texture is that in which goals and the good and bad are relatively unchanging in themselves and are randomly distributed. Emery *et al* term this *placid, randomized environment* and argue that it corresponds to Simon's idea of a surface over which an organism can locomote. Most of the surface is bare, but at isolated, widely scattered points there are little heaps of food. Further, Emery *et al* write that the placid, randomized environment corresponds to Ashby's limiting case of no connection between the environmental parts, Scutzenberger's random field, and to the economist's classical/monopolistic market. Emery *et al* point out that a critical property of organizational response under this kind of environment is based on lack of distinction between tactics and strategy. Emery *et al* (1965) write that

> "The optimal strategy is just the simple tactic of attempting to do one's best on a purely local basis....The best tactic, moreover, can be learnt only by trial and error and only for a particular class of local environmental variances. While organizations under these conditions can exist adaptively as single and indeed quite small units, this becomes progressively more difficult under the other types."
> (Emery and Trist, 1965, page 24 - 25).

The placid, randomized environment parallels stable, dispersed environment suggested by Aldrich (1979) whereby the environment is stable and unchanging, but stability is of little help to organizations because a random environment contains no information. In a random

environment it really does not matter how the environment is perceived, for anything can or cannot work. Aldrich argues that such an environment is pure fantasy, because it is highly unlikely that structures as complex as organizations would rise in such an environment where external events are equally meaningless to all participants and where chance perceptions play an important role.

Emery *et al* (1965) term the second kind of environment as *placid, clustered environment* in which though the environment is still placid, goals and noxiants are not randomly distributed but hang, or rather cluster, together in certain ways. Emery *et al* compared this kind of environment to Ashby's serial system and to the economist's imperfect competition. The clustering enables some parts to act as signs of other parts, or become means - objects with respect to approaching or avoiding. Survival becomes precarious if an organization attempts to deal tactically with each environmental variance as it occurs. Emery *et al* (1965) state that the new feature of organizational response to this kind of environment is the emergence of strategy as distinct from tactics. Survival becomes critically linked with what an organization knows of its environment and to pursue a goal under its nose may lead it into parts fraught with danger, while avoidance of an immediately difficult issue may lead it away from potentially rewarding areas. One of the important factors for survival in this kind of environment is the need to operate in a favorable location. Emery *et al* (1965) write that

> "In the clustered environment the relevant objective is that of optimal location, some positions being discernible as potentially richer than others. To reach theses requires concentration of resources, sub ordination to the main plan, and the development of distinctive competencies in reaching the strategic objective. Organizations under these conditions therefore, tend to grow in size and also to become hierarchical, with a tendency towards centralized control and coordination. "
> (Emery and Trist, 1965, page 25).

Aldrich (1979) terms this a concentrated environment and argues that since resources are no longer randomly distributed, any living system which developed the capacity for memory would have a selective advantage over its rivals for the same resources. It could

return to the optimal locations without wasting energy in the process; could behave as if it had a plan.

The third type is what Emery *et al* (1965) call the disturbed reactive environment. They compare it with Ashby's utra stable system or the economist's oligopolic market. It is similar to the second type of environment but in this case there is more than one organization of the same kind. The existence of identical organizations raises other critical issues as Emery *et al* (1965) note that

> "Each organization does not simply have to take account of the others when they meet at random, but has also to consider that what it knows can also be known by others. The part of the environment to which it wishes to move itself in the long run is also the part to which the others seek to move. Knowing this, each will know that the others must not only wish to do likewise, but also know that each knows this."
> (Emery *et al*, 1965, page 25).

The existence of similar organizations requires each to adopt an operation rather than a tactical response. Emery *et al* (1965) distinguish between tactical, operational and strategic response. They write that

> "If strategy entails identifying where one wishes to be at a future time and tactics a matter of selecting an immediate action from one's available repertoire, then, in this kind of environment there appears to be an intermediate level of organizational response that of the operation.. One has now not only to make sequential choices, but, to choose actions that will draw off the other organizations."
> (Emery *et al*, 1965, page 25).

In this kind of environment, it is necessary to define organizational objectives not in terms of ability, or power to move at will, but to be able to make and meet competitive challenges. As Emery *et al* note, this give rise to the relevance of absorption and parasitism strategies. It can also give rise to situations in which stability can be obtained only by a certain coming to terms between the relevant stakeholders. The disturbed reactive environment is akin to the unstable, concentrated environment suggested by Aldrich. According to Aldrich, the addition of other organizations competing for the same resources

changes a type two, into a type three, environment. Instability arises because the existence of competing organizations disrupts the link between strategies and the effectiveness established in type two environment.

The fourth kind of environment is what Emery *et al* call the *turbulent field* where the dynamic processes which create significant variances for the component organizations, arise from the field itself. Like type three and unlike the static type one and two, type four environments are dynamic. Unlike type three, the dynamic properties arise, not simply from the interaction of the component organizations, but also from the field itself i.e. the ground is in motion. Emery *et al* identify three factors that contribute to the emergence of these dynamic field forces. They include:

- The growth to meet type three conditions of organizations, and linked sets of organizations, so large that their actions are both persistent and strong enough to induce autochthonous processes in the environment. These are essentially the reverberating responses from the environment as a consequence of the organizational actions.
- The deepening interdependence between the economic and the other facets of the society. This leads to enmeshing organizations in legislation and public regulation.
- The increasing reliance on research and development to achieve the capacity to meet competitive challenge. This leads to a situation in which a change gradient is continuously present in the environmental field.

The turbulent field type of environment is what Aldrich calls unstable, concentrated, and turbulent environment arguing this environment would selectively reward organizations which developed efficient environmental monitoring, screening, and information processing systems. The obscurity of causal laws governing the environment makes turbulence problematic for organizations.

In this thesis the term "organizational environment" refers either to a placid, clustered environment, a disturbed reactive one or a turbulent field environment. The existence of these different kinds of environments requires organizations to have some kind of a plan if

they are to survival and grow. Such a plan may involve establishing the nature of the environment in which an organization is operating and implementation of intervention initiatives to avert organizational decline.

1.3 Theories of organizational decline

There appear to be five theories of organizational growth and decline identified in the literature. These provide different insights regarding the causes of decline and growth of organizations. They include the natural selection theory (Aldrich, 1979); (Whetten, 1980) and the resource based theory (Collis *et al*, 1995); (Grant, 1991); (Wernerfelt, 1984). Others are the contingency theory (Lorsch and Lawrence, 1970); (Zeithaml *et al*, 1988), the theory of misperception of feedback (Hall, 1976); (Masuch, 1985); (Morecroft, 1985); (Sterman, 1989); (Sterman *et al*, 1994), and the theory of referent organization (Trist, 1983). The five theories are discussed in detail next.

1.3.1 The natural selection theory

Morgan (1986) writes that the natural selection view of the organization holds that organizations, like organisms in nature, depend for survival on their ability to acquire an adequate supply of the resources necessary to sustain existence. In this effort they have to face competition from other organizations, and since resources are usually limited, only the fittest survive. Morgan holds that the nature, number and distribution of organizations at any given time is dependent on resource availability and on competition within and between different species of organizations. The environment is thus the critical factor in determining which organizations succeed, and which fail.

Aldrich (1979) identifies three stages of the natural selection theory; variation, selection and retention. He maintains that the three stages constitute a general model of organizational change, which explains how organizational forms are created, survive or

fail, and are diffused throughout the population. Organizational forms are the elements selected by the environment and include specific goals, organizational boundaries, activities, values, norms and structures. Change may occur as a result of elimination or modification of old forms. According to Aldrich, selection pressures may favour or eliminate entire groups of organizations and industries, and the changing population distribution of organizations in a society reflects the operation of such selection pressures.

1.3.1.1 Variation

Variation within and between organizations is the first requirement for organizational change, and it must also spread across environments if externally directed change is to occur. The natural selection theory is indifferent on the nature of actions producing variation. Aldrich writes that:

> "The first stage in the natural selection process is the occurrence of variations, for whatever reason: planned, unplanned, haphazard, systematic, random, predictable, or heterogeneous variation in some activity, behaviour, or structure. Variations are the raw material from which the selection process calls those structures or behaviours that are most suitable, given the selection criteria. In organic evolution, variations occur through the random process of generic mutations while in the learning processes of individual organisms, variation occurs in exploratory response made to stimuli." (Aldrich, 1979, page 34).

At organizational level variations can be a result of the creation of new organizations, exposure to ideas from other societies, staff turnover, growth of organizations, random deviations from standard practices, or variation of information gathered regarding the environment.

1.3.1.2 Selection

Aldrich states that the second stage is the operation of consistent selection criteria that differentially select or selectively eliminate certain types of variations. Selection of

organizations that are going to survive is based on the environmental criteria. Organizations fitting these criteria survive, while others fail or change to match these requirements. If selection criteria favour administrative rationality and formalized control structures, then, bureaucratically structured organizations will be selected and hence, survive.

1.3.1.3 Retention

Aldrich states that retention is the third stage of the natural selection process and involves the retention of the positively selected variations. Retention occurs when selected variations are preserved, duplicated, or reproduced so that the selected behaviour is repeated in future or the selected structure appears again in future generations.

Evaluation

Critics of the natural selection theory maintain that since according to this theory the environment dictates what organizational forms are to survive, it overlooks the fact that organizations sometimes influence the environment through management intervention. This view is for instance, echoed by Morgan who writes that

> "many organizational theorists believe that (the natural selection theory) is far too deterministic a theory to provide a satisfactory explanation of how organizations actually evolve. For example if we accept at face value the theory that environments select organizations for survival, then in the long run it really doesn't matter what managers and decision makers do. Even efficient and successful firms that adapt to their environment are liable to fail as the result of environmental changes that influence the structure of their resource niche...Despite inertia pressures, an organization may be able to transform itself from one kind into another".
> (Morgan, 1986, page 68).

Van de Ven (1979) expresses a view similar to Morgan's, arguing that the variations in the population which, are the backbone of the theory are a result of organizational actions. Van de Ven writes that

> "Furthermore, Aldrich reviews numerous historical examples that indicate the creation or change of organizational forms did not occur until variations were present in the environment. An unanswered question is where did these variations in the population come from? If traced further and at a more micro level over time, the historical roots of the various organizational forms, technologies and inventions in the population inevitably would be found in the many individual choices made by entrepreneurs or inventors. After all, are the variations that exist in the environment nothing more than the aggregated outcomes of past choices and behaviours of many individuals, interest groups, and organizations?" (Van de Ven, 1979, page 324).

Flood *et al* (1993) give similar views, stating that the use of organic metaphor to illuminate organizational change on which the natural selection theory is based, sees change as being generated externally, as the organization adapts to its environment. The metaphor does not provide for proactive development. They argue that the use of such a metaphor is problematic because it alienates people from organizations whilst in actual fact, organizations are socially constructed phenomena which must be understood from the point of view of people within them.

The use of the organic metaphor to understand organizational change, has also been criticized by Kimberly who writes that

> "Two questions, in particular, are raised by critics. First, biological organisms begin to die the minute they are born. Death is an inevitable feature of biological life. The same cannot be said of organizations. There is nothing in organizational life in itself that, of necessity, implies organizational death. Death is not inevitable feature of organizational life. Second, whereas biological organisms seem to go through relatively clear and predictable stages in development from simple to more complex, the same is not necessarily of organizations". (Kimberly, 1980, page 7).

Apart from the above criticisms, the natural selection theory has much to offer in explaining organizational change. The theory holds that organizations decline because they do not posses relevant organizational forms i.e. forms which the environment adopts as selection criteria. As mentioned before, such forms may include specific goals, activities, values, norms and structures. The theory further holds that it is possible that such forms (whether they are relevant for organizational survival or not) can possibly be created by the

organizations themselves. Hence, it suggests that organizations create their own selection criteria, which in turn dictate their survival.

In ensuring organizational survival and growth, the theory requires organizations to explore and acquire organizational forms relevant to a given environment. Alternatively, the theory requires organizations to create organizational forms that competitors cannot explore or acquire. By emphasizing the importance of the environment, the natural selection theory underscores sources of organizational decline that are environment related. Such emphasis is also likely to advance intervention efforts that are environment driven.

1.3.2 The resource based theory

The term "resource" refers to anything which, could be thought of as a strength or weakness of an organization (Wernerfelt, 1984). According to this rather broad definition, resources can be tangible or intangible. Wernerfelt (1984) states that resources in this broad context include brand names, in house knowledge of technology, employment of skilled personnel, trade contacts, machinery, efficiency procedures and capital.

According to Collis *et al* (1995), the resource based theory emphasizes the importance of core competencies, skills, and collective learning as roots of competitive advantage. Hence, unlike the natural selection theory, which puts the environment at the centre in the analysis of organizational change, the resource based theory, anchors its analysis on the internal organizational variables as sources of both organizational decline and growth. Writing in favour of the resource based theory, Grant (1991) reports that

> "The starting point for the formulation of strategy must be some statement of the firm's identity and purpose – conventionally this takes the form of a mission statement, which answers the question "What is our business?" Typically the definition of the business is in terms of the served market of the firm.. But in a world where customers preferences are volatile, the identity of a customer is changing, and the technologies for serving customer requirements are continually evolving, an externally focused orientation does not provide a secure foundation for formulating

> long term strategy. When the environment is in state of flux, the firm's own resources and capabilities may be a much more stable basis on which to define its identity. Hence a definition of a business in terms of what it is capable of doing may offer a more durable basis for strategy than a definition based upon the needs which the business seeks to satisfy". (Grant, 1991, page 116).

If strategy formulation is perceived as one type of action taken by organizations to avert decline, then Grant's view implies that the resource based theory is relatively better placed than the natural selection theory in guiding organizations to avert decline.

According to Collis *et al* (1995), the resource based theory, came into being after organizations' core competencies and capabilities were identified as sources of competitive advantage. Collis *et al* (1995) write that

> "With the appearance of the concepts of core competence and competing on capabilities, the pendulum swung dramatically in the other direction, moving from outside to inside the company. These approaches emphasized the importance of both and collective learning embedded in an organization and of management's ability to marshal them. This view assumed that the roots of competitive advantage were inside the organization and that the adoption of new strategies was constrained by the current level of company's resources. The external environment received little, if any attention and, what we had learned about industries and competitive analysis seemed to disappear from our collective psyche". (Collis and Montgomery, 1995, page 121).

The resource based theory would argue that organizations decline because they posses resources that are scarce, not in demand, or not appropriated by them (Collis *et al,* 1995); (Grant, 1991). Intervention under this theory would comprise searching for resources that are in demand and scarce, and ensure that they are appropriated by the organization. Hence, unlike the natural selection theory, which emphasizes the role of the environment on the decline of organizations, the resource based theory, tends to see resources at the centre of analysis of organizational decline.

Evaluation

By placing a relatively high emphasis on resources and maintaining that the roots of competitive advantage are inside the organization, the resource based theory risks leading organizations to compete in environments that no longer exist. The needs of the environment may at times compel organizations to abandon the products or services they are offering and pursue new ones which require completely different kind of resources. In such a situation, organizations striving to be competitive through utilization of existing resources are likely to decline. Hence, competitiveness though necessary, is not sufficient for organizational survival and growth.

Nevertheless, the resource based theory provides useful insights into the sources of organizational decline. For instance, it highlights the importance of internal organizational variables (which the natural selection theory tends to ignore) in understanding and averting organizational decline.

1.3.3 The contingency theory

Zeithaml *et al* (1988) hold that the contingency theory emphasizes the importance of situational influences on the management of organizations, and questions the existence of a single, best way to manage and organize. It is therefore a mid-range theory between extreme views which state that either universal principles of organization and management exist, or that, organizations are unique and each must be analyzed separately. The theory holds that organizations are open systems needing careful management to satisfy and balance internal needs and to adapt to environmental circumstances (Morgan, 1986). Hence, the essential premise of the contingency theory is that effectiveness, broadly defined as organizational adaptation and survival, depends on the appropriate matching of contingency factors with internal organizational variables that can allow appropriate responses to the environment.

Internal organizational variables include organizational characteristics, structures, politics and strategies, and all variables related to organizational behaviour. The latter focuses on the role of individuals and groups within organizations in creating organizational change. According to the contingency theory, there is no inexorable and irreversible movement toward the equilibrium of death as it happens to organisms. Lorsch and Lawrence (1970) capture the essence of the contingency theory of organization and therefore, summarize the above discussion quite well.

> "During the past few years there has been evident a new trend in the study of organizational phenomena. Underlying this new approach is the idea that the internal functioning of organizations must be consistent with the demands of the organizational task, technology, or external environment, and the needs of its members if the organization is to be effective. Rather than searching for the panacea of the one best way to organize under all conditions, investigators have more and more tended to examine the functioning of organizations in relation to the needs of their particular members and the external pressures facing them. Basically, this approach seems to be leading the development of a "contingency" theory of organization with the appropriate internal states and processes of the organization contingent upon external requirements and members needs".
> (Lorsch *et al*, 1970, page 1).

Zeithaml *et al* (1988) write that the contingency approach to management has its roots in general systems theory and the open system perspective, as well as in the Simon-March-Cyert stream of theory and research. The writers state that the open systems perspective views the complex organization as a set of interdependent parts that, together, constitute a whole which in turn, is interdependent with some larger environment. The interactive nature of the elements within the organization and between the organization and the environment result in at least two open system characteristics central to the contingency approach; adaptation and equifinality. The principle of adaptation asserts that the elements within the system adapt to one another to preserve system effectiveness, and the principle of equifinality holds that a system can reach the same final state from different initial conditions. Zeithaml's *et al* presentation is confusing because the open system perspective, adaptation and equifinality are not independent concepts but can rather be considered as structural characteristics of the general systems theory (Kast *et al*, 1973). Zeithaml *et al*

(1988) state that the Simon-March-Cyert stream of work adds to the open systems perspective, the view that organizations are problem facing and problem solving entities. The organization develops methods for searching, learning and deciding processes that attempt to achieve organizational effectiveness. Organizations undertake rational decisions in order to cope with complexity and uncertainty in their situations.

Zeithaml *et al* (1988) suggest a three step approach that can be used to match the contingency factors and the internal organizational variables. The first step involves identifying important contingent factors that distinguish between contexts. Contingency factors represent situational characteristics usually exogenous to the focal organization. In most instances, the opportunity to control or manipulate these factors is, at best, limited and indirect. The second step is to group similar contexts based on these contingency factors. The third step involves determining the most effective internal organizational variables or response variables in each major group so as to improve effectiveness measured in terms of the performance variables. Response variables are the organizational or managerial actions taken in response to current or anticipated contingency factors. Performance variables are the dependent measures and represent specific aspects of effectiveness appropriate for evaluating the fit between contingency variables and response variables for the situation under consideration.

The contingency theory appears to be a hybrid of the natural selection, and resource based theories. The advantage of merging these theories into one is the elimination of their respective weaknesses while complementing their strengths.

Evaluation

According to the contingency theory, organizations decline because they fail to create a fit between contingency factors and organizational variables. Organizations decline because they fail to identify the relevant contingency variables, or they fail to identify organizational variables that match the existing contingency variables. Alternatively, the

theory would argue that, organizations, decline because they adopt inappropriate response variables. One of the strengths of the contingency theory is based on its assumption that organizational decline can be prevented by creating a fit between the contingency factors and organizational variables. This implies that organizations can survive and grow as long as they are able to do so. Hence, according to this theory, intervention entails creating such a fit. Intervention requires tinkering with relationship between organizations focusing mainly on the internal organizational variables and contingency factors. The former, are normally fine tuned to fit the latter. By doing so, new organizations tend to be created. The created new organizations also undergo the same process. Note that the term "new organizations" here connotes the creation of organizations with different internal variables.

However, the theory has a tendency of restricting the scope of intervention efforts that organizations should consider. Perceiving intervention as an act of fitting organizational variables to contingency factors can be viewed as restricting. In certain circumstances, in order to avoid decline, organizations need to redefine their boundaries within the larger environment in which they are operating. In order to survive and grow, organizations sometimes need to enlarge their boundaries. Such an act is distinct from the concept of fit advocated by the theory.

1.3.4 The theory of misperceptions of feedback

The theory of misperceptions of feedback holds that organizations fail because of cognitive and other bounds on human rationality, often producing undesirable side effects. Bounded rationality is a property of decision making that reflects people's cognitive limitations. Individuals managing organizations act with some degree of good intention such as improving productivity, reducing production costs, or improving profits, yet the sum total of their interactions is often at variance with their intentions. This leads to serious consequences in the well being of organizations. Morecraft (1985) gives a detail account of such a phenomenon:

> "Suppose we learn that a magazine publisher goes out of business and that the circumstances leading up to the collapse are record losses and, at the same time, record revenues and circulation - circumstances that have occurred in the past (Hall, 1976). Then suppose we are faced with the problem of explaining this outcome, of developing a theory that will account for the choices and actions that could lead a successful enterprise into demise. It is clearly unreasonable to assume that the business failure occurred because strategy was deliberately designed to cause major losses. A much more satisfying explanation will result if we assume that the separate policies comprising the strategy were intendedly rational (in other words, intended to produce a desirable outcome), but, when linked in a commercial setting, they produced an unexpected and undesirable outcome". (Morecraft, 1985, page 900).

The idea that dysfunctional behaviour can arise from well intentioned actions emanates from a systems view of organizations (Churchman 1968; 1979). Citing the work of Simon, Morecraft (1985), states that individuals, faced with complex choices are unable to make objectively rational decisions because (1) they cannot generate all the feasible alternative courses of action, (2) they cannot collect and process all the information that would permit them to predict the consequences of choosing a given alternative, and (3) they cannot value anticipated consequences accurately and select among them. As a consequence, individuals make rational decisions under simplified conditions of choice. Morecraft (1985) identifies common organizational processes adopted for simplifying decision making. They include factoring, goals and incentives, authority and culture, routines, and basic cognitive processes.

1.3.4.1 Factoring

Factoring simplifies decision making by producing a network of specialized decision functions. Information is distributed among the decision takers of the system, and each decision taker receives only a small enough part of the available information to allow timely processing and action. A good example is the division of organizations into departments of which, none has a whole picture about what the organization is doing.

1.3.4.2 Goals and incentive

Goals and incentives can simplify decision making by focusing managerial attention on specific measures of performance. In most cases the excluded measures of performance are those very crucial to the organization's well being.

1.3.4.3 Authority and culture

Authority and culture permeate thinking at the decision nodes of the organization, altering the premises of decision making and often introducing bias and distortion into the interpretation of information.

1.3.4.4 Routines

Organizations evolve routines which provide yet another way of simplifying decision making because they call for small amounts of information from predetermined sources to be processed with simple rules of thumb.

1.3.4.5 Basic cognitive processes

Morecraft (1985) writes that when the conditions surrounding decision making have been simplified by factoring, goal formation, incentives, authority, culture, and routine, limitations on rationality still remain imposed by cognitive processes. People take time to collect and transmit information. They take still more time, to absorb information, process it, and arrive at a judgment. There are limits to the amount of information they can manipulate and retain. These cognitive processes can introduce delay, distortion, and bias into information channels. In cybernetic terms, people do not posses the requisite variety to cope with such complexity.

In order to avert organizational decline as a result of simplifying decision making, arguing in the context of System Dynamics Modeling (SDM), Morecraft proposes two alternative approaches. The approaches include premise description and partial model testing. Premise description requires that the behavioural and cognitive assumptions of any decision or action be made explicit and inquired. Partial model testing is used in simulation modeling to debug subsystem models prior to whole model simulation. Partial tests of system dynamics models are used to expose the intended rationality of organizational decision making.

Another proponent of the theory of misperceptions of feedback is Masuch (1985) who holds that the action perspective, taken to its logical conclusion, implies that many structural sub optimalities of organizations, such as under-performance, stagnation, or decay, are caused by vicious circles. Masuch writes that

> "The emerging picture begins to resemble a vicious circle. By trying to avoid undesired outcomes, human actors actually create these outcomes. And, by continuing their activities, they continue to reproduce those undesired outcomes. Understanding the logic of vicious circles should therefore increase the understanding of undesired organizational behaviour (as well as the behaviour of other social systems) and possibly help to improve it". (Masuch, 1985, page 15).

Thus, a vicious circle occurs as a result of misperceptions of feedback. Masuch writes that this occurs because of: (1) cognitive dispositions, many of which bias actors against perceiving vicious circles, (2) complexity in terms of the number of possible causal links and their relationships, and (3) the self sealing structure in that certain circles hide others. Since Musach believes that human action can prevent the demise of organizations, he is a voluntarist. He maintains that this can be achieved by understanding the logic of vicious circles. The theory of vicious circles is anchored on the concept of feedback loops. These are action loops either approaching some arbitrary reference point, or moving away from it. Negative feedback loops are deviation - counteracting while positive feedback loops are deviation - amplifying. Masuch defines vicious circles as deviation amplifying loops,

action loops with counterproductive results. He points out that vicious circles normally occur in combination, and supports his point with the following example.

> "In a case of a declining university, as discussed by Cyert, the organization faces decreasing growth rates. This reduces promotional opportunities within the organization and weakens its attractiveness to outstanding new participants (the first vicious circle). Quality inside the organization declines, so that the organization is forced to look elsewhere in order to fulfill the few top positions, thus decreasing promotion opportunities further (a second circle). The organization cannot maintain the former standards of excellence and loses students (a third circle). More financial problems creep up and are dealt up by raising tuition and reducing salaries, two additional circles (four and five) are thus triggered: more students stay away, while more good faculty members depart for better positions elsewhere. The explosion - or, more precisely, the implosion of vicious circles - may eventually lead to the actual collapse of the organization". (Masuch, 1985, page 20).

Masuch further argues that organizations of somewhat longer standing usually possess considerable reserve buffers, slack, emergency procedures, and the like to weather the storms of organizational life. However, their deviation - counteracting capacity is not unlimited. If a number of deviation counteracting loops break down at the same time or if the pressure becomes too great, this capacity may be exhausted. Once a critical threshold is passed, one vicious circle gets its chance and triggers other circles.

Masuch writes that to avoid collapse, organizations must perform three tasks: (1) Identify the threshold condition, (2) Identify possible dangers in the environment and their potential impact. This is the distance over which they may push the organization closer to that threshold, and (3) Muster sufficient reserves to be able to buffer adverse effects. Masuch believes that the literature on organizational decline shows that every collapsing organization has, in fact, violated at least one of these three conditions.

Proponents of the theory of misperceptions of feedback maintain that the above three activities can actually be undertaken by system dynamics modeling. For instance, Hall (1976) writes that

> "The system dynamics view of a company and its environment leads to the notion that structure of the system accounts for a large part of the company's own peculiar growth and development. Complex systems with many feedback loops can give rise to counter intuitive situations, whereby the intuitive judgmental decisions made by people in the system may, on occasion, not correct an out of control situation and may even make it worse.. A magazine firm when viewed as a complex dynamic information feedback system, may exhibit such situations". (Hall, 1976, page 188).

The use of system dynamics modeling to predict and prevent organizational decline is also proposed by Sterman (1989), and Larsen and Lomi (1996). Senge (1990a) uses qualitative system dynamics to predict and prevent organizational decline. Senge (1990a) brings together the ideas from system dynamics and four other approaches namely, personal mastery, mental models, building shared vision and team learning, in order to create learning organizations (Jackson, 1994). While system dynamics is used to predict the behaviour of systems, the other four approaches are applied to bring desired changes in the system.

Evaluation

Jackson (1994) writes that there is an apparent contradiction between deterministic ideas of systems governed in particular ways and voluntaristic ideas of our ability to do something about the systems. Jackson citing the work of Senge (1990a) writes that

> "Senge seeks to combine insights from the fifth discipline (system dynamics) with what can be learned from four other approaches (personal mastery, mental models, building shared vision, and team building) in order to create learning organizations. System dynamics can help decision makers to recognize systems archetypes - structures that can come to govern the behaviour of systems, and the other four approaches can help decision makers to do something about the archetypes - stopping the systemic processes if they are not favourable to the organization, or enhancing them if they are. Senge's vision sounds nice but is in danger of being self contradictory. Systems that we can predict using a few archetypes we usually cannot do very much about, the solar system for example. On the other hand, systems that we can do something about using the other four approaches are usually unpredictable using system dynamics logic: such as what is going to happen next in Russia".
> (Jackson, 1994, page 219 - 220).

The above criticism may not be relevant if the objective is to understand the sources of organizational decline and not to take action to prevent decline. Even if the objective was to prevent organizational decline, a number of writers have shown that it is actually possible to achieve this objective for instance, see Hall (1976); Larsen *et al* 1996); Masuch (1985), Sterman *et al* (1994). The main contribution of the theory of misperceptions of feedback in explaining organizational decline can therefore not be underestimated. The theory can also be perceived as providing some answers to the dilemma facing the natural selection theory. According to the natural selection theory, organizations decline because we do not have the ability to prevent them from doing so. The theory of misperceptions of feedback would reply that lack of ability to prevent decline is caused by our inability to explore unanticipated side effects of our own actions. In terms of the kind of intervention needed, the theory of misperceptions of feedback would propose the use of system dynamics modeling to uncover any unanticipated side effects of our actions.

1.3.5 The theory of referent organization

Morgan (1986) argues that the natural selection and contingency theories both view organizations as existing in a state of tension or struggle with their environments. Both presume that organizations and environments are separate phenomena. Morgan however, holds that organizations do not exist in isolation and are not self sufficient, existing rather as elements in a complex ecosystem. He writes that

> "it is the whole ecosystem that evolves, and that the process of evolution can really be understood only at the level of the total ecology. This has important implications, because it suggests that (organizations) do not evolve by adapting to environmental changes, or as a result of these changes selecting the (organizations) that are to survive. Rather, it suggests that evolution is always evolution of a pattern of relations embracing (organizations) and their environments. It is a pattern, not just the separate units comprising this pattern that evolves. Or as Kenneth Boulding has put it, evolution involves the 'survival of the fitting', and not just the survival of the fittest". (Morgan, 1986, page 69).

According to Morgan, organizations and their environments are involved in a pattern of co-creation, where each produces the other. Environments, then, become in some measure always negotiated environments, rather than independent external forces. Collaboration between organizations for their own benefits is one way of creating a negotiated environment. Collaboration of organizations normally leads to the formation of what Trist (1983) calls inter organizational domains. He writes that

> "Complex societies in fast changing environments give rise to sets or systems of problems (meta problems) rather than discrete problems. These are beyond the capacity of single organizations to meet. Inter organizational collaboration is required by groups of organizations at what is called the domain level. The required capability at this level is mediated by referent organizations".
> (Trist, 1983, page 269).

Trist (1983) states that the emergence of meta problems makes the issues involved too extensive and too many - sided to be coped with by any single organization, however large. The response capability required to clear up a mess is inter-, and multi-, organizational. Such a capability can only be found in referent organizations. Trist (1983) proposes a classification of referent organizations according to the following traits

- Constituent. One of the organizations in the domain becomes a referent organization
- Representative: a referent organization composed of representatives from all concerned organizations
- Established: referent organizations with a conservation mission
- Emergent: referent organizations having an innovation mission
- Mandated: those which are created by the constituent organizations
- Voluntary: those which create themselves according to need
- Single, or multiple, referent organizations.

There are referent organizations that may combine more than one of the above traits. For instance, there can be a representative referent organization that is both emergent and voluntary. Trist (1983) identifies three functions of referent organizations. These include

- Regulation of present relationships and activities, establishing ground rules and maintaining base values
- Appreciation of emergent trends and issues; developing a shared image of a desirable future
- Infrastructure support in terms of resource, information sharing, undertaking special projects, etc.

There is a similarity between the theory of referent organization and the stakeholder theory of organization which, describes organizations as constellation of co-operative and competitive interests of various stakeholders (Donaldson, 1995). Both theories seem to emphasis the importance of collaboration and co-operation of stakeholders in averting organizational decline.

Evaluation

According to the theory of referent organization, organizations decline because they fail to create a negotiated environment to make the environment part of the system. The theory therefore tends to rely heavily on collaboration between organizations as a way of ensuring survival and growth. It overlooks the fact that in complex systems, sub systems normally have their own goals that sometimes conflict with each other making collaboration impossible. Take for instance, the collaboration of commercial banks to increase interest rates for loans. The government and consumer societies can put pressure on banks to prevent such an increase. There can also be a conflict of interests between the banks themselves thus, making collaboration difficult.

Furthermore, the theory cannot explain the decline of organizations during periods of abundance when organizational growth can take place without the need for creating a negotiated environment since there is plenty for all.

The theory also overlooks the fact that even if collaboration was possible, there is a possibility for misperceptions of feedback as a consequence of such collaborative action.

Despite the above criticisms, the theory of referent organization has much to offer in explaining organizational decline and more important, how to avert such a decline. For instance, by emphasizing the need for collaboration between organizations so as to prevent decline, the theory suggests a systemic based intervention. By emphasizing collaboration, the theory underscores the need to consider interaction within the organization and between organizations in the process of averting decline. A systemic based intervention has been found by a number of writers as the best approach to ensure organizational survival and growth for instance, see Ackoff (1981; 1994), Churchman (1968; 1979), Flood and Jackson (1993), Senge (1990a).

1.4 Special cases of theories of organizational decline

Whetten (1980) building on the work of Levine identifies four different ways of looking at, and explaining, organizational decline. They include organizational atrophy, vulnerability, loss of legitimacy, and environmental entropy.

1.4.1 Organizational atrophy

Whetten states that organizational atrophy occurs when organizations formulate heuristic programmes for dealing with recurring problems. Because situations appear similar as long as they can be handled by same kinds of programmes, such programmes remain in use after situations meant for them have faded. Whetten holds organizations which, habitually employ programmes only on the basis of their previous usefulness, tend to become desensitized to environmental changes. As a result, organizations that were the most successful in the past become the most vulnerable to future failure. Whetten maintains that this decrease in responsiveness is not associated with organizational age. In the context of

the five theories discussed earlier, decline of organizations due to organizational atrophy can be perceived as a special case of the contingency theory i.e. organizations decline because they fail to adapt to their environments.

1.4.2 Vulnerability

Building on the work of Stinchcombe, Whetten writes that organizations are particularly vulnerable in their infancy. During this time they must overcome the liabilities of newness, some of which are temporary inefficiency due to inexperience, frequent inter-personal conflicts resulting from distrust, and the lack of a stable set of ties to customers, suppliers, and regulators. Drawing from the work of Levine, Whetten identifies small size, internal conflict, changes in leadership, lack of a base of expertise, and absence of a positive self-image and a history of excellence. Age may be the most accurate predictor of bureaucratic vulnerability. Decline due to vulnerability tends to indicate strains of both the natural selection theory and the resource based theory.

1.4.3 Loss of legitimacy

Again, building on the work of Levine, Whetten notes that problem depletion is a major cause of loss of legitimacy. Once the problem for which an agency was organized has been resolved, that agency should presumably be terminated. However, Whetten cautions that the ability of an agency or programme to establish a powerful constituency allowing it to function independently of its enabling constitution makes it extremely difficult to terminate what appears to be an anachronous organization. He concludes that though loss of legitimacy is a potential source of decline and termination, it is one of the environmental threats that many organizations are remarkably capable of deflecting. Loss of legitimacy seems to be a special case of the natural selection theory.

1.4.4 Environmental entropy

Whetten argues that the fourth kind of decline stems from the reduced capacity of the environment to support an organization. Faced with environmental entropy, organizations can either find another ecological niche or scale down their operations. The first alternative is normally adopted by commercial organizations, while the second, by public and educational institutions. Note that the latter response to organizational decline is based on the premise that the management of declining organizations is an unfortunate victim of circumstances. And, the former response is based on the view that a crisis ridden management has neither the vision nor the will to initiate the innovations necessary to reverse the downward spiral of decline (Whetten, 1980). The former response to organizational decline due to environmental entropy can be perceived as falling under the natural selection theory and the second, under the resource based theory.

1.5 Towards a complementary theory of organizational decline

Although the theories of organizational decline discussed earlier are perceived as rivals in making organizational decline intelligible, in actual fact these theories may be perceived as complementing each other because, it may be argued, taken individually the theories do not adequately address the sources of organizational failure.

Considered together however, the theories form the raw material for a consolidated list of sources of organizational decline. Such a list is based on the premise that each theory has a role to play in explaining organizational decline. For instance, the natural selection theory brings to the list the importance of environmental factors in explaining organizational decline. However, though environmental factors are necessary yet they are not sufficient in explaining organizational decline. While the resource based theory highlights the importance of internal organizational variables, the contingency theory contributes the

concept of fit in explaining organizational decline. In particular, the contingency theory highlights the need to create a fit between the environmental factors and the internal organizational variables if organizational decline is to be understood and hence, averted.

Again, the natural selection, the resource based, and the contingency theories alone cannot adequately explain organizational decline. The creation of referent organizations suggests that the scope of "fit" advocated by the contingency theory can be enlarged to include making some of the environmental factors part of organizational variables. This again, brings to the fore the need for organizations to be part and parcel of their environments so that decline can be avoided. The theory of misperceptions of feedback holds that, although we may act with good intention to create fit and/or review boundaries of organizations, yet our acts sometimes can be the main cause for organizational decline. Hence, according to the five theories, organizations decline because

- They overlook the importance of environmental factors
- They ignore the role of organizational design variables
- They do not create fit between the environmental factors and the organizational design variables
- They do not explore any misperceptions of feedback
- They do not pursue collaborative action.

Merging the five theories into one broadens the scope of intervention efforts to be taken in averting organizational decline. It is believed that the broader the scope, the higher the chance of effectively preventing organizational decline.

1.6 Conclusion

The six theories of organizational decline (including the complementary theory) discussed in this chapter raise one important issue that is, the implication of such a diversity of organizational decline theories on management intervention. Because six theories of

organizational decline have been identified means that there are various views on what causes organizations to fail. Note that our intention is not to dismiss some or all of these theories. Instead, what can be claimed at this stage is that the existence of a variety of views on organizational decline implies that there are also various views on what measures to take in preventing organizational decline.

For instance, while prevention measures based on the natural selection theory would require organizations to adapt to their environments, prevention measures guided by the resource based theory would focus to a larger extent, on the creation of distinctive competencies and appropriation of valuable resources. The contingency theory would suggest measures that create a fit between the organizational and environmental variables. The theory of misperception of feedback would propose prevention measures that consider interaction and feedback between organizational and environment variables. This theory would require the adoption of system dynamics modeling to uncover any misperceptions of feedback. The theory of referent organization would recommend prevention measures that emphasize the need for collaboration between relevant stakeholders. Hence, the implication on management intervention of the existence of several organizational decline theories, is the existence of different intervention methodologies.

What can also be argued at this stage is that if the claim that there are various views on the kind of measures that should be adopted by organizations to prevent decline is true, then there is a problem in the field of management intervention. However, before we talk about this problem, the validity of the above claim must first be confirmed. This confirmation is done in the next three chapters.

Chapter Two. Related Studies on the Failure of Intervention Efforts.

> Theorists are forever unveiling ideas, christened with some acronym and tarted up in scientific language, which are supposed to guarantee competitive success. A few months later, with the ideas tried out and competitive success still as illusory as ever, the theorists unveil some new idea.
> (Micklethwalt and Wooldridge, 1997, page 17).

2.1 Introduction

The objective of this chapter is to support the claim established in chapter one that there is a diversity of views on what causes organizations to decline and as a consequence, there are different intervention methodologies that correspond to these views. Support for this claim is crucial in firmly grounding the conclusion that a need exists for further research to establish the kind of intervention methodology that organizations should adopt. There is a need to support this claim because, the existence of many intervention methodologies which differ, or are in conflict, would justify the work done by the author of this thesis.

Supporting the claim is achieved by first, exploring various views advanced by different writers regarding the reasons for the failure of intervention efforts and showing that they actually, correspond to different theories of organizational decline. The reasons advanced by various writers for the failure of intervention efforts are perceived to occur at three levels; at the level of theory, methodology, and method, for management intervention. The claim is further supported by discussion of several intervention methodologies and methods proposed by different writers, showing that they also correspond to different theories of organizational decline.

Since it is necessary to explore the relationship between the reasons for failure of intervention efforts and the theories of organizational decline, the chapter presents first the key dimensions of organization. This is because these dimensions are expected to provide a link between the theories of organizational decline and reasons for the failure of intervention efforts, and between the former and intervention methodologies and methods, proposed by different writers.

2.2 Key dimensions of organization

The key dimensions of organization refer to essential features that characterize most organizations. Flood (1996) identifies four such dimensions namely, organizational processes, organizational design, organizational culture and organizational politics. Flood writes that

> "We need to have some understanding of *organizational processes*, the flows and controls from "suppliers" right through to "consumers" including stakeholders with an interest in events. We need to consider *organizational design* within which processes flow. This means considering the degrees and forms of structure in terms of which patterns of coordination and control are created. We must also appreciate individual and cultural differences and similarities that exist between people that come into play in the decision making process....Despite this differentiation, or even because of it in some circumstances, cohesion may be attained. This is partly because it is possible to share symbols for meaningful communication. This association is often associated with the word "*culture*". This is not to say that sharedness implies total overlap of meanings held and developed in the process of exchange. On the contrary, in a dynamic cultural setting, differences of opinion, of ways of interpreting exchanges, of ways of interpreting one another's conduct, and of ways of seeing issues of relevance in the course of interaction, inevitably arise. A number of these differences will be expressed through *organizational politics*". (Flood, 1996, page 98).

According to Flood, unless all four key dimensions of organization are taken into account in the process of conceptualizing issues to be managed, ways of managing our affairs become unnecessarily reduced. Jackson (1995) also identifies similar key dimensions of organization when he writes

> "I have been involved in systems and management science, as being based upon ignorance. We have not pretended to know what makes them reasonable places to work in. I still would not claim to be sure whether it is getting the structure right or the processes right or the culture right, or dealing with politics. It is probably something of all these things, but we need to carry out more serious research to be sure and not jump to conclusions before we start - as it sometimes seems that the advocates of the various fads do". (Jackson, 1995, page 36).

Jackson acknowledges the view that organizations are characterized by the above mentioned dimensions. However, unlike Flood, Jackson is not sure on the need to take into account all dimensions in conceptualizing issues to be managed.

The existence of four dimensions of organization is also supported by the use of metaphors undertaken by Morgan (1986) to make organizations intelligible. Whilst the use of a machine, organic and brain metaphor presume the existence of organizational processes, the use of culture metaphor acknowledges the existence of organizational culture, and the use of psychic prison metaphor and political metaphor suggests there is an existence of a political dimension in organizations.

In this thesis two types of organizational processes are identified: external and internal organizational processes. External organizational processes focus on the relationship between the organization and the environment. They include for instance, transaction processes that take place between the organization and suppliers, customers, etc. Internal organizational processes are business processes that take place within the boundaries of the organization.

2.2.1 Dimensions of organization and theories of organizational decline

The natural selection theory holds that organizations decline because organizational forms do not meet the selection criteria. In the context of dimensions of organization, the selection criteria are the external organizational processes. Hence, the natural selection theory would argue that organizations decline because their organizational forms do not meet the external organizational processes.

On the other hand, the resource based theory, makes use of tangible and intangible resources of organizations to explain organizational decline. This means that this theory focuses on organizational culture, design, and internal organizational processes, in analyzing organizational decline.

Since the contingency theory makes use of contingency and organizational variables to explain organizational decline, it therefore considers organizational processes, culture, and design. Note that while the external organizational processes make up the contingency variables, the internal organizational processes fall under organizational variables.

The theory of misperceptions of feedback would argue that organizations decline because actions taken in good faith to change the internal organizational processes, organizational design, and culture, cause unintended side effects that lead to their demise.

Finally, the theory of referent organization would emphasize the importance of external organizational processes in explaining decline. The theory would argue that organizations decline because they encompass limited external organizational processes. The theory would hold that organizations need to redefine their boundaries (enlarge them) if they are to survive.

It seems various theories of organizational decline make use of different dimensions of organization to explain organizational decline in different ways. In the coming sections the concept of dimensions of organization is expected to enrich the discussion on the failure of intervention efforts. Let us now discuss the reasons for the failure of intervention efforts.

2.3 Reasons for the failure of intervention efforts

The reasons advanced by various writers for the failure of intervention efforts are perceived to occur at three levels. There are reasons at the level of theory, reasons at the

level of methodology and others at the level of method, for management intervention. These levels are shown in figure 2.1.

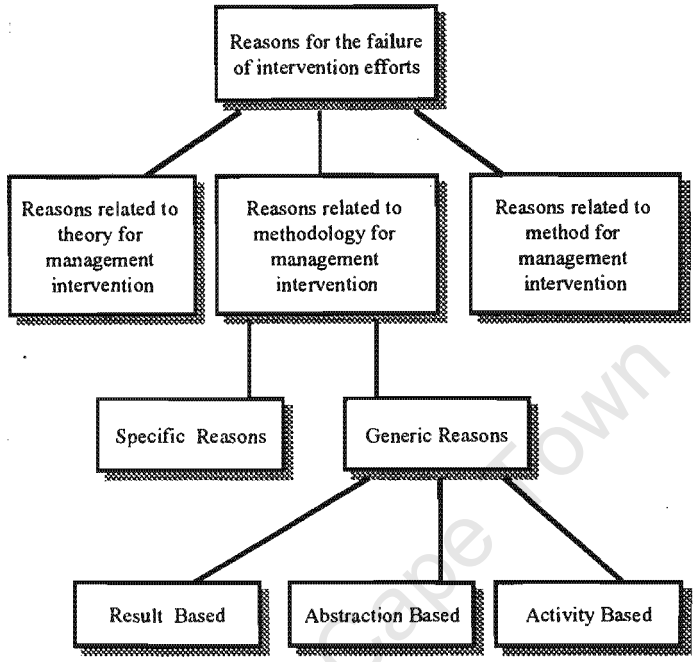

Figure 2.1 Levels of reasons for the failure of intervention efforts

According to figure 2.1, reasons at the level of theory hold that intervention efforts fail because either, they are based on theories not known to those who advocate and use them, or they are based on theories that are not strong enough.

Reasons at the level of methodology fall into two groups; generic and specific. Generic reasons are termed so because writers who advocate them propose alternative intervention methodologies that are general in nature. Generic reasons can further be classified into three categories; those related to abstractions (such as empowerment, participation and leadership), those reasons activity orientated, and reasons that are result based.

The adoption of particular intervention methodologies by a number of writers tends to suggest reasons for failure that are specific in nature. In this thesis we shall limit ourselves to specific reasons suggested by three particular methodologies: methodology for the implementation of organizational learning, action learning, and methodology for the transformation of organizational culture. Specific reasons will be discussed in chapter three and four.

The third category of reasons for failure of intervention efforts is at the level of method, please refer to figure 2.1. This level explores reasons that make method driven intervention efforts, fail. In this thesis we shall limit ourselves to two such methods namely, Total Quality Management and Business Process Reengineering, which writers claim can produce continuous and radical improvement respectively.

Note that though the three levels are treated as if independent, they are actually interrelated. This is because a theory for management intervention determines the kind of intervention methodology to be adopted and the latter sets the parameter for the type of intervention method(s) to be used. Let us now discuss the reasons at each level in more detail.

2.3.1 Studies that are at the level of theory

Weick (1989) defines a theory as "an ordered set of assertions about a generic behaviour or structure assumed to hold throughout a significant broad range of specific instances". In the context of management intervention, it is worth to acknowledge the hierarchical nature of theories. At the highest level, grand theories can be identified. A grand theory is no more than a set of metaphysical, epistemological, and axiological assumptions of an assertion. Mid range theories can be located below the grand theories level. Mid range theories are the application of grand theories in explaining social issues. These are essentially social theories that can be found in any literature on sociology for instance, see Burrell and Morgan (1979). Micro theories exist at the lowest level in the hierarchy. Micro theories are essentially organizational theories and

are the adoption of mid range theories to explain organizational issues. The various theories of organizational decline are a good example of micro theories.

The three levels of theories are interrelated in that mid range theories are determined by the nature of their grand theories, and micro theories are in turn, depend on the nature of their mid range theories. In this chapter, however the term "a theory for management intervention" refers to any of the three kinds of theories. This is because writers on the quality of theories for management intervention take divergent views. Some focus on grand theories. Others focus on mid range theories. Yet others focus on micro theories. However, since the three levels of theories are interrelated, the type of levels, which writers focus in explaining the failure of intervention efforts is not relevant. Note that a fault grand theory implies that its corresponding mid range theory, and micro theory, are also faulty. On the other hand, a faulty mid range theory, or micro theory, may either be caused by the fact that it corresponds to a faulty grand theory, or it does not correspond to its grand theory, which in this case, is not faulty.

There is a wealth of literature on the failure of intervention efforts and. some of it relates the failure to the theory that guides intervention. For instance, Jackson (1995) provides a rigorous examination of the strengths and weaknesses of various intervention approaches. He classifies these into two broad categories namely, those falling under the umbrella of management fads and those which appear under the banner of management science, including systems thinking. According to Jackson, intervention efforts based on Total Quality Management (Crosby, 1979); (Deming, 1986); (Juran, 1988), and on Business Process Reengineering (Hammer and Champy, 1993), are essentially management fads. This also includes intervention approaches proposed by Beer and Spector (1990), Kaufman (1992), and Kotter (1995).

Jackson (1995) states that intervention through management science, and systems thinking in particular, involves the application of systemic methodologies discussed in Flood *et al* (1993) to produce intervention. This also includes the use of Total System Intervention proposed by Flood *et al* (1993) and Local Systems Intervention suggested by Flood (1996a).

Jackson (1995) explains why intervention approaches described as management fad fail to produce intervention. One of his reasons is that those who propagate the fads often appear to know the answers before they actually do the research, which then amounts to little more than a self-fulfilling prophecy. He argues that in order to do serious research, it is necessary to set up a strong hypothesis that we seek on all possible occasions to refute over an extended period of time. Setting a strong hypothesis is akin to developing a strong management intervention theory. Hence, according to Jackson, fads fail because they are not based on a strong theory for management intervention.

The second reason advanced by Jackson is that fads fail because the solutions offered often appear extremely partial. This is because the solutions take into account some, but not all dimensions of organization. By citing TQM as an example, he writes that it is a fad because of its emphasis on organizational processes and ignoring issues related to organizational design and politics. Jackson traces this problem of partiality to the manner in which sympathizers of fads regard them as crucial to business success. Jackson writes that

> "you can see this easily enough if you ask what they are taking for granted about what makes organizations effective. Are they thinking of organizations just as machines, or are they thinking of them as organisms needing to adapt to their environments, or as cultures in which different value systems and political interests co-exists?" (Jackson, 1995, page 37).

Hence, the partiality reason seems to be related to the theory for management intervention – a theory that guides the fads. Certainly, Jackson seems to focus on grand theories for management intervention.

The third reason given by Jackson is that fad writers do not, for the most part, explore the theories underlying their recommendations. They do not question what they take for granted about organizations in intervening them in a particular way. Jackson states that underlying all prescriptions for intervening are various theories about the nature of social systems and it is important that such theories are exposed and understood. Again, this reason is related to the theory for management intervention.

Jackson however does not propose an alternative theory that can be used to guide intervention. He instead, recommends that this can only be achieved through lengthy research.

Other writers have also acknowledged the existence of management fads and identified their weaknesses, for instance Donaldson and Hilmer write that

> "In a recent *Organizational Dynamics* editorial, the editors of this journal...presented a controversial argument in favour of management fads. The editorial implied that too many managers had developed the potentially harmful response of dismissing any new concept such as TQM, employee involvement, and self directed teams, as nothing but fads".
> (Donaldson and Hilmer, 1998, page 7).

Donaldson and Hilmer hold that the fads do not necessarily produce the benefits claimed because they lack solid intellectual foundation. They claim that faddism does not produce the benefits claimed, because in management studies it has created an impediment to greater intellectual productivity by allowing unproven and incorrect ideas to go unchallenged. The authors write that this tends to prevent the more rapid production of sound theory backed by cumulative empirical research. Donaldson and Hilmer identify sound reasoning and clear language as key issues that can make intervention effective. Certainly, these writers acknowledge the fact that fads fail because they are not based on adequate theory. For them an adequate theory is a scientific theory. Donaldson and Hilmer also seem to focus on grand theories for management intervention.

Micklethwalt and Wooldridge (1997) adopting the term "management theory" to signify a theory for management fads state that management theory is no more than tribal medicine. Witch doctors, the authors claim, often got it right - by luck, by instinct or by trial and error. They write

> "Management theory, according to the case against it, has four defects: it is constitutionally incapable of self criticism; its terminology usually confuses rather than educates; it rarely rises above basic common sense; and it is faddish and bedevilled by contradictions that would not be allowed in more rigorous

disciplines. The implications of all four charges is that management gurus are conmen, the witch doctors of our age, playing on business people's anxieties in order to sell snake oil". (Micklethwalt and Wooldridge, 1997, page 15).

The writers argue that management theory is full of contradictions because

> "One moment, the gurus are preaching total quality management - and the importance of checking quality and reducing defects; the next, they are insisting that what matters is speed....One moment, they are saying that what gives a company its edge is its corporate culture, the more distinctive the better; the next they are ordering companies to become more "multicultural" in order to hold up society. One moment, companies are argued to agree upon and then follow a single strong "vision"; the next they are being warned that they live in an age of uncertainty where following any single vision can be suicidal".
> (Micklethwalt and Wooldridge, 1997, page 15).

Micklethwalt and Wooldridge conclude that these contradictions reflect a deeper intellectual confusion at the heart of management theory. It is worth noting that, incapacity for self-criticism, full of internal contradictions, or inability to rise above commonsense, implies inadequacy in a theory. Though Micklethwalt and Wooldridge criticize strongly the management theory on which fads are based, yet they do not propose an alternative management theory. The writers seem to pay their attention on micro theories for management intervention.

It can be concluded that related studies on the failure of intervention efforts focusing on the theory for management intervention suggest that

- Intervention efforts fail because they are not based on a strong theory. Some writers hold that a strong theory is a scientific theory. Others maintain that a strong theory can only be identified through extensive research.
- Intervention efforts fail because writers who propagate such efforts are not informed of theories that underlie them.

In relation to the theories of organizational decline, writers in this camp would argue that fads fail to produce effective intervention because they are either based on a theory of decline that is not strong, or such a theory is not known to those who propagate the fads.

Writers at this level tend to agree on at least one issue: intervention efforts fail because they are not based on a strong theory of organizational decline. There is however a lack of consensus on what a strong theory is. Some hold that it is a scientific theory. Others tend to suggest that there is no such thing as a strong theory. One needs to undertake research to develop one. It can therefore be said that there is no consensus amongst writers on what constitutes a strong theory.

2.3.2 Studies that are at the level of intervention methodology

2.3.2.1 Abstraction orientated reasons

Studies related to abstractions hold that intervention efforts fail to produce successful results because

- They lack a sense of urgency.
- They lack a powerful guiding coalition
- They lack vision
- They do not communicate the vision
- They do not empower those who are to act on the vision.
- They do not make use of short term wins to foster intervention initiatives
- They fail to align organizational culture and structure to the vision of the organization

In the final analysis writers in this camp posit that the organizational culture and structure must be aligned with the organization's new vision and strategy. Their objective is to achieve what Kotter and Heskett (1992) call *a strategically appropriate culture*. Since writers in this camp acknowledge both the contingency and organizational variables in management intervention, their arguments tend to be based on the contingency theory.

Writers in this camp include Allaire and Firsirotu (1985) who propose an intervention methodology that takes into account the above factors. They hold that changing the organization's culture, and later structure, and aligning them with the corporate vision,

will improve the performance of that organization. They identify six steps for the improvement process. In the first step a proper diagnosis is made. They hold that the leader should do this. The objective is to establish the type of improvement required. The second step is to formulate a meta strategy for radical change. According to them, the meta strategy gives the strategy for changing culture and structure. It also outlines the goals and direction or vision of the organization.

The third step is to assess the corporation's present culture and structure. The writers provide a set of questions that, once answered, can lead one to grasp fully the nature and type of the existing culture. Step four consists of defining the goals of a company's culture and structure. The objective of this step is to establish what type of culture and structure are required for effective implementation of the firm's strategy. They caution that the new culture should be in line with the environment. In step five a broad agenda for radical cultural change is proposed. They propose the use of political actions, symbols and change agents as means for effectively changing the organizational culture. In the last step, the organization is stabilized by institutionalization of changes. This is achieved by streamlining practices, procedures, policies, and decision making systems.

Although Allaire *et al* (1985) methodology is based on contingency theory, it emphasizes organizational culture and structure more than organizational processes. On changing organizational culture and structure, Allaire *et al* (1985) hold that it is the leader who should decide what kind of intervention is required. These writers prescribe a set of questions that can help diagnose the existing culture and structure. For instance, in the second step of their methodology they assert that it is the leader who should bring about changes by formulating a meta-strategy and introduce it to the employees. They write that

> "This means that when present or anticipated events indicate that change in an organization's culture and structure is necessary, the leader must be able to formulate a strategy to implement a radically different strategy in the organization. This strategy is called a meta-strategy".
> (Allaire *et al,* 1985, page 26).

Since a meta - strategy is solely formulated by the leader, Allaire *et al* (1985) does not acknowledge the importance of creating a shared understanding of the problem situation through the participation and interaction of those involved and affected by the intervention process. The approach for changing culture proposed by Allaire *et al* (1985), may be challenged by other writers such as Kotter (1995), who advocate wider participation of employees in changing culture.

Our objective at this stage is not to show which writer is right or wrong, but rather to show that there are different views on how intervention should be undertaken even within the contingency theory itself.

Tunstall (1983) proposes a similar methodology to that suggested by Allaire *et al* (1985). He argues that culture can be positively influenced by consistent thoughtful managerial action. He outlines a case study on how this was done at American Telephone and Telegraph Company in the early 80's. The company was moving from a monopolistic to a deregulated market environment. Tunstall gives a three - step methodology to effect a change in culture. In the first step the existing organizational culture is ascertained. One needs to establish how customers, employees and shareholders are treated by the organization. He assumes that a culture of the organization is a guide on how to deal with the categories of people. Separating the cultural wheat from the chaff is his second step. The objective here, he writes, is to identify the cultural elements that will not be needed in the new situation. The last step is to undertake managerial actions to effect change in corporate culture by revamping the system management, structure, human resource development systems, articulation of the value system, and modification of symbols. Tunstall assumes that if culture is changed, then performance is improved. Similar to Allaire *et al's*, Tunstall's methodology seems to be influenced by the contingency theory. He tends to use organizational culture, design and internal organizational processes as organizational variables. The treatment of customers and shareholders appear to be his external organizational processes and hence, his contingency variables.

Kotter (1995) proposes an eight - step methodology that can produce effective intervention. The steps are shown in figure 2.2. Kotter (1995) acknowledges the need for a dynamic leadership as contrasted to strong management if intervention is to succeed. The need for a committed team is also highlighted in his methodology. How such a team should be formed is not explained. It is, however, claimed that at least 75% of top management must be committed if the improvement is to succeed. How this is to be achieved will largely depend on the nature of the leader pioneering the intervention. The need for a vision is also pointed out. A vision will enable the organization to have a shared sense of direction, and purpose, and avoid the simultaneous pursuit of contradicting projects. It will also inspire and rally the employees in making the improvement successful. The vision should be effectively communicated to all employees through meetings, reviews, and appraisals. The need to eliminate obstacles is also emphasized in the methodology. Obstacles can be related to the organization's structure, narrow job categories or even to the employees themselves.

Kotter (1995) argues that short-term wins will inspire employees to exert effort into the improvement process. It means, giving top priority and implementing improvement projects that can show results between 12 to 24 months. This can, however, have detrimental effects because promising projects might be discouraged simply because their impact on performance take a long period of time to be seen.

The need to institutionalize the changes through modification in organizational culture and structure to suit the vision is also mentioned in his presentation. Kotter (1995) argues that this should be done in the last stages of the improvement methodology, but this could be risky because the existing culture might prevent any early changes to take off. According to him, culture and structure are changed after the improvement has shown some results. This might be inappropriate because methodologies that do not yield good results in early stages but improve performance in the long term might not be implemented. Also, all systems and working practices are to be aligned with the proposed vision. In order to ensure that the improvement does not regress, it is

suggested that all human resource development procedures should align with the need for future dynamic leaders.

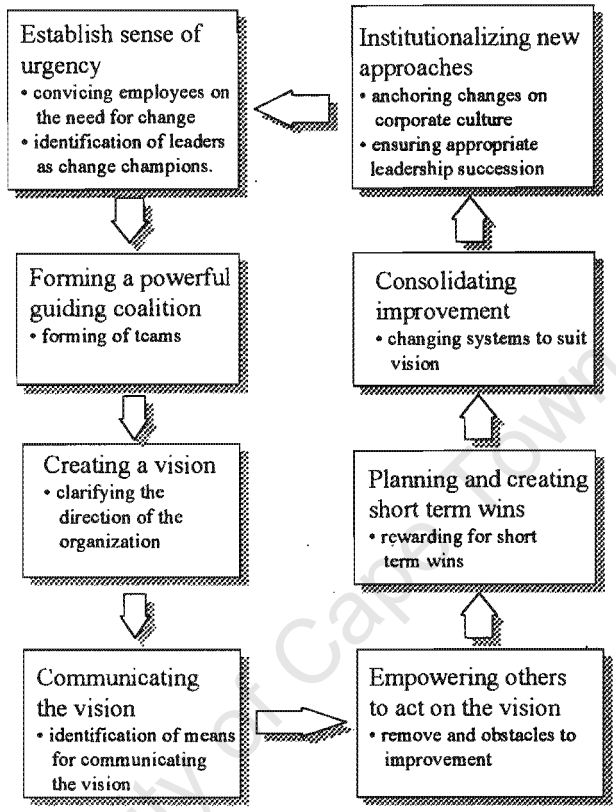

Figure 2.2. Kotters's intervention methodology. Adopted from Kotter (1995).

Hence, Kotter's methodology is based on contingency theory with a strong emphasis on organizational culture as an organizational variable. For instance, the need to form a powerful guiding coalition, the requirement of empowering others to act on the vision, the call to establish a sense of urgency and to communicate the vision, and the need for institutionalizing new approaches, tend to emphasize issues related to organizational culture. On the other hand, the need to create vision underpins issues related to the environment.

Kaufman (1992) formulates four managerial contradictions that make performance improvement methodologies fail. The first contradiction, he claims, is the lack of a clear strategy that provides a context for making tradeoffs, determining priorities and

joining departments in a common mission. Omission of this strategy, he writes, can create chaos, with each department pursuing its own objectives and projects. The second contradiction is inconsistency between what is said by management and what is actually done. He argues that any espoused values of top management make improvement efforts fail to take off. The third contradiction occurs when incentive plans conflict with the goals of intervention efforts. Essentially this is similar to saying that systems and management practices should be aligned with the new strategy. The last contradiction occurs when reporting relationships and organizational structures also fail to align with the strategy and improvement efforts. In his presentation Kaufman seems to argue that first a strategy should be created, and then organizational culture and structure should be aligned to the created strategy.

Although Kaufman does not propose any alternative intervention methodology, the first three contradictions which, he mentions relate to the values and culture of the organization. The last contradiction underscores issues related to organizational design. Kaufman, however, does not perceive inability to scan the environment properly as a contradiction. Hence, Kaufman's views seem largely influenced by the resource based theory.

Poza (1983) gives a twelve - action methodology for building strong US factories. The twelve actions are divided into three parts namely, functions related to management and leadership, functions related to systems, and functions related to people.

Functions related to management and leadership

- Have a purpose and strategy
- Manage the boundaries or frontiers(involve community)
- Design responsibility into jobs(job enrichment and rotation)
- Pay attention to the role of supervisors
- Make the union a partner
- Design more flatness into the organization structure

Functions related to systems

- Choose the technology

- Keep the layout simple
- Ensure that all information systems are in plain English
- Provide compensation to encourage learning and improve productivity.

Functions related to people

- Start with appropriate personnel policies and practices
- Recognize and use symbols.

The actions proposed by Poza cover issues related to organizational culture, design and processes. For instance, most of the functions under management and leadership have much to do with the internal organizational processes and design. While functions related to people are associated with organizational culture, functions related to systems fall under internal organizational processes. Hence, Poza's views seem largely influenced by the resource based theory.

Hayes *et al* (1988) identify reasons that cause difficulties to manufacturing companies in implementing improvement methodologies. Their reasons fall under three categories: obstacles within manufacturing, obstacles within other functional areas and obstacles at the corporate level.

Obstacles within manufacturing

1) Changes taken as just another management fad
2) Fundamental changes take a long time in some areas such as R & D
3) Lack of experience among senior management for undertaking the transformation methodology.

Obstacles within other functional areas

4) Manufacturing activities are given less priority
5) Improvement in manufacturing, for instance TQM initiatives takes a relatively long time compared to other approaches such as restructuring, downsizing and outsourcing.
6) The need to change power balance.

Obstacles at the corporate level.

7) Changing the infrastructure is difficult because it demands a lot of time
8) Ingrained attitudes and behaviours inhibit transformation efforts.

Note that obstacles 1, 3, 4 and 8 fall under organizational culture. Obstacles 2 and 7 fall under internal organizational processes, and obstacle 6 under organizational politics. Though Hayes *et al* (1988) do not acknowledge any obstacles related to organizational design, they perceive organizational politics as one of the obstacles.

Tichy *et al* (1984) state that for any improvement methodology to succeed, a transformation leader is required. They underscore three main tasks undertaken by a transformation leader namely, creation of a vision, mobilization of commitment and institutionalization of changes. They claim that a vision is a mission statement or objectives to be pursued by the organization. In creating the vision, a transformation leader can either use a committee or create it alone. They argue that successful revitalization does not depend on how the vision is created, but rather on the extent to which the vision correctly responds to environmental pressures.

Tichy *et al* (1984) point out that in mobilizing commitment, a critical mass of the employees must be persuaded to accept the new vision if they have to make it happen. They propose the use of retreats to discuss and agree on the vision. In institutionalizing changes, management practices are altered. They also state that the organizational culture must be shaped to align with the vision.

Regarding the creation of vision, Tichy *et al* acknowledge the need for considering the contingency variables. The need to mobilize commitment and institutionalizing changes are all related to organizational culture and design. Though their methodology tends to be based on contingency theory, issues related to organizational processes are not well captured.

Hence, according to the above discussion most writers advancing abstract related reasons are influenced by either the resource based theory, or the contingency theory.

2.3.2.2 Result based reasons

There are writers who assert that if intervention methodologies are to succeed, they should be result driven. For instance, Schaffer *et al* (1992) seem to be critical of methodologies that focus on the abstractions and believe this to be the main cause for their failure. Schaffer *et al* (1993) argue that intervention methodologies fail because they

- Are not geared to specific results
- Are too large scale and diffuse
- Hope for long term results
- Use wrong measures.

On the other hand, Schaffer *et al* claim that their result driven methodology succeeds because

- Managerial and process innovations are introduced when needed. For instance, change in systems, culture and structure is done after signs of success are visible.
- Empirical testing reveals what works. Short term results help testing
- Frequent success results motivates employees.

Though some of the advocates of intervention methodologies which, focus on the abstractions acknowledge the need for performance measurement, but they do not assert that success of improvement methodologies is driven by performance measurement alone.

Kaplan *et al* (1992); Kaplan (1993), provide a balanced scorecard methodology that, they claim, drives performance. Their scorecard is divided into four areas each area indicating different measures of performance. The four areas measured include customer, financial, internal business, and innovation and learning perspective. The balanced scorecard links all the performance measures. With a help of a spreadsheet, sensitivity analysis can be undertaken to explore the impact on the four areas of different intervention efforts or policy options.

Since by their nature organizational processes are easier to measure than any other dimensions of organization, result based reasons tend to focus on organizational processes. Hence, writers in this camp tend to base their arguments on the contingency theory, though issues related to organizational design and culture are normally not strongly considered.

2.3.2.3 Activity based reasons

Advocates of activity based intervention are very critical towards enthusiasts of intervention through changing abstractions such as culture and structure. They hold that successful change efforts should focus on the work itself and not on abstractions like participation or culture. For instance, Beer *et al* write

> "But while senior managers understand the necessity of change to cope with new competitive realities they often misunderstand what it takes to bring it about. They tend to share two assumptions that promulgating company wide programs - mission statements, corporate culture programs, training courses, quality circles, and new pay for performance systems-will transform organizations, and that employee behavior is changed by altering a company's formal structure and systems". (Beer *et al*, 1990, page 158).

Hammer *et al* (1993) share a similar view with Beer *et al* (1990). Hammer *et al* write that

> "Teamwork, empowerment, etc. are abstractions and generalizations around which it is impossible to get one's arm. They describe characteristics /attributes that one might want an organization exhibit, but, there is no direct way to achieve them. They are consequences of process design and they can only be achieved in that context. How is one supposed to begin working on empowerment if not through the architecture of the work processes?"
> (Hammer *et al*, 1993, page 203).

Beer *et al* (1990) state that most change methodologies don't work because they are guided by a fundamentally flawed theory of change. They argue that the failure of change methodologies is attributed to the common belief that the place to begin is the knowledge and attitudes of individuals i.e. changes in attitudes lead to changes in

individual behaviour. And changes in individual behaviour, repeated by many people, will result in organizational change. Beer *et al* hold that the theory gets the change process exactly backward. They instead propose that individual behaviour is powerfully shaped by the organizational roles and responsibilities assigned to an individual. This creates a situation that, to some extent, forces new attitudes and behaviours on people.

They assert that changing the culture and structure can be done only when the need arises in the course of the improvement process. This means that the culture and structure should be changed only once the methodology has shown some good results. The improvement methodology proposed by Beer *et al* emphasizes that a special attention should be paid to three important factors if any effective improvement is to be achieved. These include the coordination, commitment and competence of employees. Their methodology is shown in figure 2.3

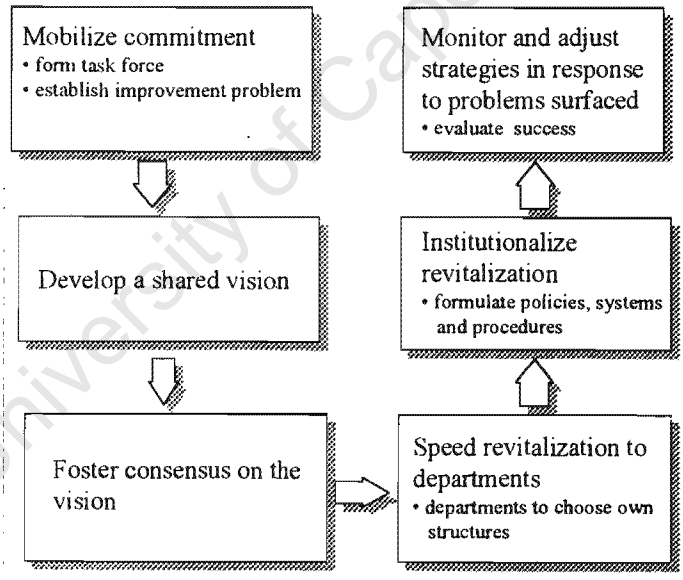

Figure 2.3.. Beer *et al* (1990) intervention methodology.

Beer *et al* (1990) emphasize the need for creating a powerful coalition in the beginning of the project. They also claim that to avoid changes breaking down once reached, a

critical mass, structures and systems must be aligned with the new management practices. Their methodology is also made up of steps that form what they call a *critical path*. The first step involves identification of an improvement problem done by a task force. Through the formation of task forces, they claim, commitment is built among the employees. In the second step, the task force develops a shared vision. The third step involves fostering consensus on the vision, and speeding revitalization to departments is done in the fourth step.

They argue that departments should be given the freedom of choosing their own structures. In step five revitalization is institutionalized, policies, systems and structures being formalized. And, in the last step monitoring and adjusting strategies in response to emerging problems is undertaken. Beer *et al* emphasize that the tasks of monitoring and adjusting require evaluating any achievements attained by the intervention initiative

Beer *et al* (1990) seem to focus on organizational processes and on organizational design. By paying attention to the development of vision, these writers seem to take into consideration issues related to the environment i.e. external organizational processes. Hence, Beer *et al's* methodology appears to be influenced by the contingency theory.

There are writers whose intervention methodologies seem to be influenced by the theory of misperceptions of feedback. They include Hall (1976); Masuch (1985); Morecroft (1985); Senge (1990a); Sterman (1989). These writers pay much attention to organizational processes, and to some extent on organizational culture. As mentioned in chapter one, writers in this group tend to propose intervention efforts that are based on System Dynamics (Forrester, 1968).

It can be concluded that related studies on the failure of intervention efforts which, focus at the level of intervention methodology suggest:

- Various writers advance different reasons for the failure of intervention efforts

- The reasons advanced and methodologies proposed tend to consider different dimensions of organization.
- Writers advance different intervention methodologies that are based on different theories of decline.

2.3.3 Related studies on the failure of intervention methods: A case of efforts based on TQM and BPR methods

The literature indicates that the failure rate of intervention efforts based on Total Quality Management (TQM) is as high as 63% (Schaffer *et al*, 1992). On the other hand, Hammer *et al* (1993) write that the failure rate of intervention efforts based on Business Process Reengineering (BPR) is between 50% and 70%.

Different writers have come up with reasons for such high rates of failure. In this section, related studies on the causes for failure of TQM and BPR intervention methods are discussed.

2.3.3.1 Failure patterns of TQM method

The literature suggests three areas of failure in TQM methods. They include failure to improve productivity, failure to improve short-term financial performance, and failure to improve financial performance in the long term. The three patterns are not exclusive.
Failure to improve Productivity

Various studies have indicated that some intervention efforts based on TQM method fail to improve productivity. For instance, Schaffer *et al* write that

> "In a 1991 survey of more than 300 electronics companies, sponsored by the American Electronics Association, 73% of the companies reported having a total quality methodology underway, but of these, 63% had failed to improve quality defects by even as much as 10%. We believe this survey understates the magnitude of the failure of activity centred methodologies not only in quality conscious electronics industry but, across businesses".
> (Schaffer *et al*, 1992, page 81).

Schaffer *et al* suggest causes for the failure of TQM based intervention efforts to improve productivity. They write that

> "These activities, many of which parade under the banner of TQM or continuous improvement, typically advance a managerial philosophy or style such as inter functional collaboration, middle management empowerment, or employee involvement. Some focus on measurement of performance such as benchmarking, assessment of customer satisfaction or statistical process control. Still other activities aim at training employees in problem solving or other techniques". (Schaffer *et al*, 1992, page 80).

Failure to improve short -term financial performance.

According to Sterman *et al* (1994), once a TQM based intervention method is implemented, positive financial results begin to emerge after three years or more. This is due to the fact that the implementation of TQM is guided by its definition. For instance, Develin *et al* (1993) define TQM as a system of behaviour which embraces everyone within an organization and determines their relationships with the outside world, customers, suppliers, competitors, society and the environment. Its driving principle is continuous improvement. From this definition, everyone in the organization should participate in the improvement process.

On the other hand, Dale *et al* (1988) state that everyone in the organization is involved in continually improving the process under his or her control and takes responsibility for his or her own quality assurance. TQM involves the cooperation of everyone in the organization and associated business processes, to furnish products and services that meet customer needs and expectation. Dale *et al* seem to suggest a separate involvement of everyone in the implementation of the TQM in improving his/her business process. The implementation of TQM does not yield short term financial benefits because it is based on the wrong definition of the business process. Whilst new product development is based on the right definition of the business process, TQM is not. This is because a new product development process is anchored on the total process i.e. the relevant functional department's processes are treated as a single process. On the other hand, TQM emphasizes the improvement of the individual

processes i.e. manufacturing, new product development, sales, marketing etc. The tendency of TQM programmes to improve individual processes has also been acknowledged by Garvin (1995).

The manufacturing process is relatively less complex than the new product development process. This is because the level of organizational and technical complexity of the new product development process is comparatively higher than that of the manufacturing process (Schneiderman, 1988); (Sterman *et al*, 1994); (Repenning, 1996). Now, if a TQM based method is implemented that involves both processes, unanticipated side effects are likely to occur. This happens because TQM improves manufacturing processes faster than the new product development processes. The final effect as Sterman *et al* (1994) and Repenning (1996) have shown, is a failure to improve financial performance in the short term.

Modest improvement in financial performance in the long term

What happens in the long term financial performance if an organization successfully implements a TQM based intervention method and manages to go through the poor short- term financial performance? It has been established that TQM improves profit in the range of 5% to 10% of sales (Crosby, 1979); (Davenport, 1993). This modest improvement is caused by the accomplishment of quality improvement efforts by working through the existing processes and continuously seeking to enhance them. However, some of the activities within the value chain may not be relevant so that the process becomes unnecessarily cumbersome and inefficient, with a high potential for defects. Hammer *et al* (1993) hold that preaching quality won't help. Even if every person involved in order fulfillment did his or her job perfectly and in exactly the time allotted, the process would still be slow and error prone.

In other words, quality control focuses solely on eliminating assignable errors and accepting chance errors. Chance errors are inherent in the design of the process whilst assignable errors may be caused by the employees, defective material or worn out cutting tools. Focusing on one kind of error contributes to modest improvement in

financial performance. In this section failure of an intervention effort based on a TQM method implies any of the above patterns of failure.

2.3.3.2 Limitations of intervention efforts based on the TQM method

One may wonder why quality improvement has attracted many writers and practitioners. The argument that quality can improve customer satisfaction, improve productivity and even the short and long term financial performance of organizations, is the reason (Deming, 1986); (Juran, 1988); (Crosby, 1979). Crosby holds that implementation of quality methods can increase profit by 5% to 10% of sales. Such an improvement is supported by the fact that quality improvement methods increase sales through customer satisfaction initiatives, and reduce production costs and costs related to occupational health. Juran (1988) states that quality can prevent loss of sales, reduce the cost of poor quality, and prevent any loss of life such as for incurred by the Chernobly disaster, the Bhopal disaster, and the US Challenger accident. Juran claims that the cost of poor quality is between 20% and 40% of sales.

Though TQM has such advantages, in many occasions, it has failed to deliver the expected results. Jackson's view is similar.

> "At least in terms of its high aspirations we need to consider the fact that TQM programmes do, on many occasions, fail. In two separate 1991 surveys carried out by national consulting firms, in the USA, more than 80% of chief operating officers regarded the results of their companies' TQM efforts as disappointing. In an Arthur D. Little surveys in the USA, in 1992, 93% of firms were found to have some form of quality improvement programme, but only 36% of the executives polled regarded these as having any significant effect upon their organizations' competitive position". (Jackson, 1995, page 33).

Jackson proceeds to identify six factors that make TQM intervention efforts fail. According to him, TQM initiatives fail because they focus on customers, often at the expense of other stakeholders. Building on the work of Ackoff, Jackson holds that customers often do not know what they want unless you help them discover this and, moreover, other stakeholders such as employees are even more important than, customers.

The second cause for the failure of efforts based on the TQM method hinges on their insistence for continuous improvement, usually by getting ride of what one does not want. Again, building on the work of Ackoff, Jackson writes that one cannot automatically get what one wants by getting rid of what one does not want. He also agues that continuous improvement is sometimes not enough, instead one needs to undertake more drastic improvements.

The third cause for failure of efforts based on the TQM method according to Jackson, is lack of organization structure to institute quality improvement happen.

The fourth cause, according to Jackson, relates to inability to introduce quality culture, and the fifth is related to organization politics. On the latter, Jackson writes that there is a neglect of the politics of quality, and little recognition that quality interventions can lead to some groups benefiting and others suffering. Finally, Jackson maintains that while quality improvement efforts can help us do our things right, they cannot lead us do the right things.

In the context of the dimensions of organization, Jackson seems to argue that TQM intervention efforts fail because they overlook issues related to organizational design, and politics. Though TQM intervention efforts acknowledge the importance of organizational culture, yet such efforts lack a mechanism to deal with this dimension. According to Jackson's evaluation, TQM intervention efforts focus to a larger extent on organizational processes at the expense of other dimensions of organization.

Grant *et al* (1994) take a different view as to causes that make intervention efforts based on TQM fail. Their argument is that if one takes these causes into account in designing intervention efforts base on TQM, such efforts are likely to produce effective intervention. They claim that TQM based efforts fail because disagreement over goals and implementation procedures surface, upper level management turn their attention to other priorities, and employees become increasingly skeptical about organizational commitment. They state that lack of top management commitment to TQM is caused

by disagreements about objectives and the need for top management to relinquish power.

Grant *et al* further state that quality intervention efforts fail because conventional management practices, systems and structures are not transformed in accordance with the philosophy and practice of TQM.

Disagreement over goals, disagreement on implementation procedures, and change of organizational priorities, all have are related to the dimension of organizational culture. Hence, according to Grant *et al*, TQM based intervention fails because organizations fail to create a culture that supports this kind of intervention. Issues related to management commitment are also related to values and hence, organizational culture.

In the context of the dimensions of organization, Grant *et al* (1994) perceive the failure of intervention efforts to be caused by their inability to deal effectively with issues related to organizational culture, organizational design and internal organizational processes.

Jacob (1993) proposes five key steps to making TQM work:

- The CEO must be visibly behind it. Speeches alone won't work
- Avoid tunnel vision. Ask what changes do for customers
- Limit for a few critical goals. You cannot solve two dozen
- Link changes to a clear financial pay back - and expect it soon
- Don't adopt a quality method off-the-shelf. You are unique.

Certainly Jacob seems to acknowledge the need for financial pay back, and for management commitment, and the need to understand what the customer wants. Lack of commitment may be caused by lack of interest, low priority on the issue or fear to relinquish power.

Hence, Jacob perceives the failure of TQM based intervention efforts to be caused by their inability to deal effectively with issues related to organizational politics and to

organizational culture. By acknowledging the need to understand customer requirements, he acknowledges the importance of external organizational processes. However, Jacob does not acknowledge the importance of issues related to organizational design.

As mentioned earlier, other writers have identified the reasons behind poor short-term financial performance of conventional TQM intervention efforts. For instance, Sterman *et al* (1994) and Repenning (1996) have established that it is quite possible for TQM intervention efforts that are implemented successfully to cause poor financial performance in the short term. They ascribe this to the fact that first, under capacity utilization occurs which has a negative effect on price setting. Second, supply exceeds demand, which in turn escalates inventory costs. All these have a negative impact on production capacity, causing financial stress to the organization. The organization then resorts to restructuring, negatively affecting employees' morale and hence, the implementation of TQM.

Sterman *et al* and Repenning use Systems Dynamics to analyze possible scenarios with the intention of establishing unanticipated side effects on performance. The objective of their approach is to identify, and prevent any misperceptions of feedback. In the context of the dimensions of organization, Sterman *et al* and Repenning perceive the failure of TQM efforts to be caused by their inability to deal effectively with the internal organizational processes and to a lesser extent organizational culture. The authors do not perceive that failure is caused by the inability of TQM programmes to deal with issues related to organizational design or politics.

Lawler *et al* (1985) have a different view on the reasons behind the failure of Quality Circles and hence, TQM intervention efforts. They argue that Quality Circles are unstable organizational structures likely to self destruct. They identify a maximum of six phases that any Quality Circle has to experience during its life. These are start up, initial problem solving, approval of initial suggestions, implementation, expansion of problem solving and decline.

According to Lawler *et al*, since all Quality Circles undergo decline in their lives, it is expected that any TQM intervention effort should burn out. Lawler *et al* do not address such issues as what happens to the Quality Circle if the working practices and decision making systems are altered. Other writers, for instance, Grant *et al* (1994), would argue that Quality Circles decline because of this reason. Moreover, other writers such as Sterman *et al* (1994) and Repenning (1996) would argue that Quality Circles decline because they do not bring about the expected results, as a consequence, organizations are forced to abandon them. They would tend to claim that organizations are forced to abandon TQM efforts and hence, Quality Circles because of misperceptions of feedback.

In the context of the dimensions of organization, Lawler *et al* would relate the failure of TQM efforts to their inability to deal effectively with issues related to organizational design. The writers do not consider issues related to organizational culture, processes or politics as important in this case.

Garvin (1995) identifies three factors that make TQM intervention efforts fail. The first is that TQM assumes that process design can be divorced from rethinking business strategy. TQM takes an operational view, targeting processes that have grown with little rationale. He maintains that in an era of volatile and rapid changing markets and technologies, TQM can generate an improved process for competing in an environment that no longer exists.

The second factor for the failure of TQM intervention efforts is that they often treat processes as unconnected islands. Garvin argues that the success of most businesses depends on how a bundle of their critical processes interact. This is very near to saying that TQM efforts are not systemic.

Finally, Garvin writes that TQM intervention efforts ignore management processes - the ways senior managers make decisions, communicate, implement, monitor and compensate performance.

In the context of the dimensions of organization, the first and second factors are related to organizational processes. The last factor concerns organizational culture. Garvin therefore would argue that intervention efforts based on the TQM method fail because they are unable to deal effectively with these dimensions. Garvin does not perceive dealing with issues related to organizational design and politics as important in this case.

It can therefore be concluded that studies on the failure of intervention efforts based on the TQM method suggest that

- Writers hold different views on what causes TQM programmes to fail. For instance, some writers advance reasons that are related to organizational design, others give reasons that are related to organizational processes, and yet others give reasons that seem to be related to organizational culture or politics.
- For those writers advancing reasons related to similar dimensions of organization, yet, they tend to have different views on how to deal effectively with these dimensions in order to avert the failure of efforts based on the TQM method. For instance, writers who advance reasons related to organizational processes, some propose the use of System Dynamics to uncover any misperceptions of feedback (Sterman *et al,* 1994); (Repenning, 1996), while others seem not to acknowledge this kind of approach.
- Most writers seem to be influenced by the resource based theory, contingency theory and the theory of misperceptions of feedback.

2.3.3.3 Failure of intervention efforts based on the BPR method

Davenport (1993) identifies two main approaches that organizations adopt for improving performance. These include methods that seek continuous financial improvement in the range of 5% to 10% of sales, and more radical methods with improvements greater than 50% of sales revenue. Davenport holds that methods, which can bring continuous or incremental improvements, include TQM, while radical improvements can be achieved by methods such as Business Process Reengineering (BPR).

However, similarities exist between TQM and BPR methods. One of the similarities is the fact that both methods strive to satisfy the customer and moreover, they focus on improving business processes. On the other hand, there is a striking difference between the two methods. First, TQM works within the existing processes striving continuously to improve them. The aim as Hammer *et al* (1993) state, is to do what we already do, only to do it better. A BPR method on the other hand discards the existing processes, replacing them with new ones that enable process objectives to be attained effectively and efficiently.

Definition of a Business Process

Davenport (1993) defines a business or work process as a structured, measured set of activities designed to produce a specified output for a particular customer or market. According to Davenport *et al* (1990), business processes

- Have customers i.e. have defined business outcomes and recipients of these outcomes,
- Cross organizational boundaries,
- Have objectives such as reduction of cost, time, improvement of output quality and customer satisfaction, and
- Focus on *how* work is done (while products focus on *what*).

Davenport (1993) cites the following business processes for manufacturing firms.

Operational
Product development
Customer acquisition
Customer requirements identification
Manufacturing
Integrated logistics
Order management
Post sales services

Management

Performance monitoring

Information management

Asset management

Human resource management

Planning and, resource allocation.

Definition of Business Process Reengineering

Hammer *et al* (1993) define business process reengineering as the fundamental rethinking and radical redesign of business processes to achieve dramatic improvement in critical contemporary measures of performance such as cost, quality, service and speed. Reengineering is *fundamental* because the status quo is questioned. In the reengineering process, it is common to ask questions such as "why do we do what we do?" "Why do we do it the way we do?" The objective is to determine what should be done and how to do it. The term *radical* appears in the definition because reengineering means disregarding all systems, processes and structures, and designing new ones. Hammer *et al* argue that reengineering is *dramatic* because it can improve performance ten times more than other methods which seek to bring incremental or continuous improvement, such as the Total Quality Management method.

Hammer *et al* (1993) outline the main features of a BPR exercise. In a BPR exercise

- Several jobs are combined into one
- Workers make decisions
- Processes are performed in a natural order
- Processes have multiple versions
- Work is performed where it makes the most sense
- Checks and controls are minimized
- Reconciliation is minimized
- A case manager provides a single point of contact
- Hybrid centralized and decentralized operations are prevalent.

There are different kinds of BPR efforts. For instance, Clemons (1995) identifies three types namely, business process redesign, process innovation and business revisioning. Business process redesign, which involves the least radical degree of change, entails redesigning processes to make them more efficient or improve service quality. It does not require a fundamental change in the purpose of the process or in the larger process in which it is embedded. Process innovation seeks to make processes more valuable, frequently altering them in fundamental ways. Process innovation does not however, change the firm's strategy or vision but creates new ways that can add value to customers. Business revisioning requires the devising of a new vision and a new competitive strategy, followed by the development of an entirely new business process to support the new vision.

Related studies on the failure of intervention efforts based on the BPR method

Though the level of improvement attained by an organization as a result of a BPR method is high, the implementation of such a method has proved to be very risky. Hammer *et al* (1993) estimate the failure of BPR projects to lie between 50% and 70%.

Hall *et al* (1993) argue that lack of leadership commitment, insufficient levels of depth, and breadth levers cause the failure of BPR projects. Depth levers include roles and responsibilities, measurements and incentives, organizational structure, shared values and skills. A narrow focused or rather, narrow breadth, BPR project is confined to a single work centre process or to a process that does not cut across more than one department.

While most of the depth levers cited by Hall *et al* are related to organizational design and culture, depth levers are related to internal organizational processes. Hence, Hall *et al* tend to argue that intervention efforts based on the BPR method fail because the aforementioned dimensions of organization are not well considered in the design and implementation of these projects. On the other hand, the writers do not perceive organizational politics as one of the depth levers.

Martinez (1995) cites four reasons for the failure of BPR projects. They include

- Logistical and organizational complexity of the project
- Resistance to change
- Lack of experience and,
- Underestimating migration.

Resistance to change may be a result of a power struggle and/or lack of a shared understanding about the BPR project within the organization. Hence, Martinez seems to relate the failure of BPR projects to their inability to deal effectively with organizational politics and organizational culture. Logistical and organizational complexity of the project appears to be related to the complexity of organizational processes. On the other hand, lack of experience and underestimating migration, tend to be related to organizational culture. Hence, Martinez seems to suggest that all four dimensions of organization must be considered if a BPR intervention project is to be successful.

Clemons (1995) states that BPR projects fail because of

- Financial risks (lack of financial resources)
- Technical risks (requirements are beyond enabler's capability)
- Project risks (failing to manage the project)
- Functionality risks and,
- Political risks (resistance to change).

All the above type of risks can be perceived as the inability of BPR projects to deal with organizational processes, culture and politics. For instance, financial risks have to do with what management perceives to be of importance and are therefore related to values and culture of the organization. Political risks seem to be related to both organizational politics and organizational culture. Technical, project and functionality risks have a lot to do with the internal organizational processes.

Cooper *et al* (1995) argue that BPR projects fail not because people resist change *per se,* but because of the way they are treated and the roles they play in the change

process. Since this has a lot to do with the inability of BPR projects to deal with organizational culture, design and politics, Cooper *et al* suggest that these dimensions of organization need to be looked at in the design and implementation of BPR projects.

Garvin (1995) identifies three factors that make BPR intervention efforts fail. The first is that BPR assumes that process design can be ignored when rethinking business strategy. According to him, BPR takes an operational view by targeting processes that have grown with little rationale. He maintains that, in an era of volatile and rapidly changing markets and technologies, reengineering can generate much improved process for competing in an environment that no longer exists. This factor is related to the inability of BPR projects to deal with external organizational processes.

The second factor according to Garvin for failure is that BPR often treats processes as unconnected islands. Garvin argues that the success of most businesses depends on how a 'bundle' of their critical processes interact. This factor is related to the inability of BPR projects to deal effectively with the internal organizational processes.

Finally, Garvin states that BPR ignores management processes - the ways senior managers make decisions, communicate, implement, monitor and compensate performance. All these have a lot to do with internal organizational processes. Hence, Garvin perceives the failure of BPR efforts to be caused by their inability to help organizations deal effectively with organizational processes.

As regards to the failure of BPR projects, most writers seem to be influenced by the resource based theory, and to some extent, by the contingency theory.

2.4 Conclusion

In this chapter, several related studies on the causes for failure of intervention efforts at the level of theory, methodology and method for management intervention have been discussed. It has been shown that writers at the level of theory at least share the view that intervention efforts fail because they are based on a weak theory for management

intervention. They do, however, differ on what constitutes a strong theory. Some hold that a strong theory for management intervention should be that of the scientific method while others maintain that research needs to be undertaken to establish such a theory. For example, Jackson (1995) writes that he is not sure whether it is getting the structure, or the processes, or the culture right or dealing with politics that counts.

At the level of methodology, writers have different views on what causes intervention efforts' failure. Their views differ because they focus on different dimensions of organization. For instance, reasons that are both activity and result based seems to focus on organization processes. As a consequence, while most of the activity based reasons are influenced by the resource based theory, result based reasons appear to be influenced by the contingency theory.

On the other hand, reasons that are abstract oriented, focus on organizational culture and design, and to some extent, on the external organizational processes. As a result, writers in this camp seem to be influenced by either the resource based theory or the contingency theory.

Depending on the kind of dimensions of organization taken into account and hence, the kind of theory of organizational decline, writers propose different types of intervention methodologies. A similar trend has been identified at the level of method.

As argued earlier, the objective of this chapter was to support the claims established in chapter one that there is a diversity of views on what causes organizations to decline and as a consequence, there are different intervention methodologies that correspond to these views. It was held that supporting these claims is crucial if the conclusion that more research is needed to establish the kind of intervention methodology that organizations should adopt, is to be firmly grounded. The chapter has achieved this objective since it has been shown that

- There are various views advanced by different writers regarding the reasons for the failure of intervention efforts. These views correspond to different theories of organizational decline.

- There are different intervention methodologies and methods proposed by different writers. Also, these methodologies and methods correspond to different views concerning the reasons for the failure of intervention efforts and hence, to different theories of organizational decline.

The diversity of reasons concerning the failure of intervention efforts and the variety of intervention methodologies existing in the literature, is an indicator of lack of consensus in the field of management intervention. The lack of consensus can be perceived as a weakness from the perspective of organizations because they do not know which of these intervention methodologies should be adopted.

The existence of this weakness is a justification for more research to be undertaken in this particular area. The aim of this kind of research should be to develop a management intervention theory, and a methodology based on such a theory that can produce successful intervention. This thesis strives to achieve this aim.

Chapter Three. Performance Improvement Through Transformation of Organizational Culture.

> The basic philosophy, spirit, and desire of an organisation have far more to do with its relative achievements than technological, economic resources, organisation structure, innovation and timing. But they are, I think, transcended by how strongly the people in the organisation believe in its basic precepts and how faithfully they carry them out. (Tom Watson Chairman, IBM. In Kotter *et al*, 1992)

3.1 Introduction

There are writers who claim that in any given kind of environment, there is a marked relationship between organizational culture and performance Goffee *et al* (1996), Kotter *et al* (1992), Schein (1989), Tunstall (1983). The existence of this relationship has prompted writers to proposed intervention methodologies that are either culture based or regard culture as an important component. Though the relationship between organizational culture and performance has received a lot of attention from writers since in the 50's, it is however, claimed that it was only during the late 70's that the majority of organizations started putting into practical application these findings (Kotter *et al*, 1992).

As in chapter two, the objective of this chapter is to support the claim raised in chapter one, that a variety of intervention methodologies proposed by different writers exist. These methodologies are influenced by different theories of organizational decline. In this chapter, particular attention is paid to performance improvement through transformation of organization culture. Writers in this camp tend to suggest that poor performance is a result of organizational culture – environment misfit. They therefore propose that intervention methodologies fail to improve performance because they do not align organizational culture to the surrounding environment.

As argued in chapter two, reasons given by these writers fall under the level of methodology for management intervention. Intervention efforts through transformation of organizational culture seem to be influenced by specific reasons for the failure of intervention efforts, please refer to figure 2.1 of chapter two.

The chapter discusses related studies on the meaning of organizational culture, types of organizational culture, and the relationship between organizational culture and performance. A number of cultural transformation methodologies are also discussed.

Two conclusions are drawn from this chapter. The first is that the need to improve performance through the creation of organizational culture – environment fit, suggests that intervention methodologies fail to improve performance because they do not observe this need. The requirement to observe this need is seen as an indicator of the diversity of views regarding reasons for the failure of intervention efforts. It is also perceived as an indicator of the diversity of views regarding the kind of intervention methodology that organizations should adopt. The second conclusion is that though writers agree on the need to change culture, there seems to be no consensus on how this can be achieved. This observation is perceived as a weakness that surrounds this camp. Both conclusions justify the need for more research to establish the kind of intervention methodology that organizations should adopt.

3.2 The meaning of organizational culture

It appears that there are three related dimensions of culture i.e. artifacts, values and the basic assumptions (Schein, 1988). Writers tend to define culture in terms of these dimensions. Goffman (1967) defines culture as observed behavioural regularities when people interact, such as the language used. Goffman tends to look at culture in terms of the artifact dimension. Deal *et al* (1982) define culture as the dominant values espoused by an organization, such as product quality or price leadership. Deal *et al* define culture in terms of the value dimension. Pascale *et al* (1981) and Tagiari *et al* (1968) define culture as the philosophy that guides an organisation's policy towards employees

and/or customers. These writers tend to perceive culture in terms of the value dimension. On the other hand, Schein (1988) defines culture in terms of basic assumptions. Schein writes that

> "Culture should be reserved for the deeper level of basic assumptions and beliefs that are shared by members of an organisation that operate unconsciously and that define in a basic taken for granted fashion an organisation's view of itself and the environment. These assumptions are learned responses to a groups' problem of survival in its external environment and its problems of internal integration. The assumptions are taken for granted because they solve the groups problems repeatedly and reliably".(Schein, 1988, page 6).

Schein (1988) uses figure 3.1 to show the relationship between the basic assumptions and the other dimensions of culture. The figure suggests a self - reinforcing loop because artifacts and creations influence the values of the organization, which in turn sets the parameter for the type of basic assumptions to be held by the organization. The basic assumptions held by the organization sustain the values, and the latter maintain the existing artifacts and creations. The cycle repeats again.

According to Schein (1988), the culture of a group is a result of its past experience on the feedback obtained in applying certain methods in solving problems, and out of the process the group reaches a consensus on what should be the correct method in handling such problems. It is only when a given approach of dealing with problems is seen to be effective that it becomes a theory-in-use and is adopted as a culture of the group. The basic assumptions can be perceived as mental models entrenched in the minds of the managers and employees of the organization.

Brown (1995) defines culture as the pattern of beliefs, values and learned ways of coping with experience that have developed during the course of an organization's history, which tend to be manifested in its material arrangements and in the behaviours of its members. Hence, like Schein (1988), Brown (1995) tends to look at culture in terms of its three dimensions.

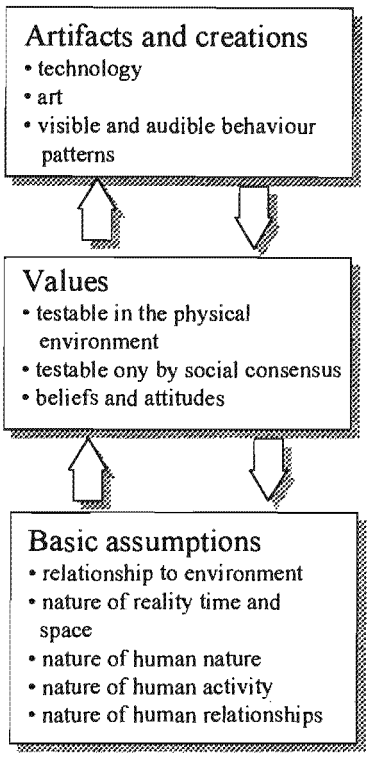

Figure 3.1. The nature of culture. Adopted from Schein(1988).

Brown (1995) states that artifacts include

- Material objects such as annual reports, the products an organization makes, and sales and advertising brochures.
- Physical layouts for example how office space is used, the quality of furnishings, dress codes, relative location of departments, and the general appearance of the buildings and car parks.
- Technology used and any equipment the organization employs to manufacture its products.
- Language; for instance, jokes, anecdotes, stories, metaphors, and jargon terms.
- Behavioural patterns such as rites, rituals, ceremonies and celebrations.
- Symbols such as material objects, physical layouts, posters and distinctive ways in which executives demonstrate particular points.

- Rules, systems, and procedures. Models for compensation, appraisal and promotion. Rules governing the structure, compositions and periodicity of committee meetings.

Brown (1995) further writes that values are intimately connected with moral and ethical codes and determine what people consider ought to be done; their concepts of right, and wrong. Beliefs on the other hand, concern what people consider as true of false.

In order for an organization to survive and grow, Schein (1988) states it should be able to scan the environment continuously, and ensure that the assumptions about itself are congruent with the environmental realities all times. If there is a misfit between the assumptions and what takes place in the environment, the organization will face survival problems.

Schein (1988) writes that the basic assumptions (please, refer to figure 3.1) focus on five areas discussed next.

3.2.1 Relationship to environment

Brown (1995) holds that organizations differ greatly in the extent to which, they perceive themselves in control of their destinies. Some organizations assume that they are able to dominate their environment; others believe that they must harmonize with it, often by finding an appropriate niche. All these organizations are likely to take a contingency view (Zeithaml *et al*, 1988) and the formation of organization domains (Trist, 1983) as a means for coping with the environment. Others, however, assume that they are dominated by their environment, and must accept whatever niche is available. This view is held by organizations which believe in the natural selection theory (Aldrich, 1979).

3.2.2 Nature of Reality, Time and Space

Different theories of reality will be discussed in chapter five. However, at this stage it suffices to say that theories of reality can be classified in terms of subjective versus objective, or static versus change. Organizations' beliefs are normally based on one of these theories. Regarding time, Schein (1988) writes that organizations may have orientations towards the past, present or future. The organization must have a shared understanding of the notion of space, particularly of the meaning of the physical location of objects in the environment. Beliefs concerning time and space are determined by the beliefs about the theory of reality held by an organization.

3.2.3 The nature of human nature

According to Schein (1988), basic assumptions about qualities of human nature in organizations translate into the way in which employees are controlled and the degree of autonomy given to them. For instance, in some organizations people are regarded as fundamentally lazy and hence must be coerced i.e. organizations believe and use McGregor's theory X, while in others, people are considered to be highly self motivated hence, organizations believe in McGregor's theory Y. There are also organizations that believe in theory Z.

3.2.4 The nature of human activity

Brown writes that there are organizations that view work as primary, and organizations, which perceive the lives of their employees to be more valuable than the work itself. There are also organizations that assume that a balanced and integrated combination of both work and private life is feasible and desirable.

3.2.5 The nature of human relationships

The assumptions in this area focus on the maintenance of congenial relationships among employees in the organization. Internal harmony is required if the organisation is to deal with the environment effectively. These assumptions guide the manner in which issues of power, influence, hierarchy, peer relationship, reward and punishment, criteria for recruitment and dismissal are dealt with in the organization. These issues are related to organizational design, behaviour and processes.

3.3 Types of organizational culture

Different ways of classifying organizational culture have been adopted by various scholars. Different classifications emerge because scholars adopt different classification criteria. For instance, according to Brown (1995), the Harrison/Handy's typology is based on power and the manner in which it influences various members of the organization. The Deal/Kennedy's typology is based on the risk orientation of the organization and the organization's celerity in getting feedback from the environment. The Quinn/McGrath's typology is based on the analysis of the nature of the transactions associated with information exchange in organizations. Although writers use different classification criteria, their classifications appear to share seemingly similar features.

Note that there is a difference between the areas of organizational culture discussed above and the types of such culture discussed in this section. All areas of organizational culture are inherent in each type of organizational culture, though in different form.

One kind of classification of organizational culture is proposed by Goffee *et al* (1996). These writers propose two classification criteria: sociability and solidarity, which they call dimensions of culture. The authors then use these dimensions to identify four different kinds of organizational culture namely, networked, mercenary, fragmented and communal culture. Goffee *et al* write that in networked organizations which are characterized by high sociability but low solidarity, people frequently stop to talk in the

hall-ways, they wander into one another's offices with no purpose but to say hello. Lunch is an event, groups often going out and dining together, and after-hours socializing is not the exception but the rule. Inside the office, networked cultures are characterized not by lack of hierarchy, but by a profusion of ways to get around it. Friends make sure that decisions about issues are made before meetings are held to discuss them. People move from one position to another without the required training. Employees are hired without reference to the official in the human resource department. This informality can lead to flexibility in an organization and be a healthy way of cutting through the bureaucracy. Goffee *et al* hold that the features of networked organizations include the ability to collect and selectively disseminate soft information and, the ability to acquire allies.

The low levels of solidarity in networked organizations mean that managers often have trouble getting functions or operating companies to cooperate. Also, a networked organization is usually so political that individuals and cliques spend much of their time pursuing personal agendas and hence, there is little commitment to shared business objectives. In short, networked organizations are characterized by cliques, gossips, and low productivity. However, Goffee *et al* point out that each type of corporate culture has its most appropriate time and place. Networked organizations, function well when corporate strategies have a long time frame, when knowledge of peculiarities of local markets is a critical success factor, and when corporate success is an aggregate of local success.

Goffee *et al* write that a mercenary organization is characterized by low sociability but high solidarity. Almost all communication in a mercenary organization is focused on business matters because it is believed that individual interests coincide with corporate objectives, and those objectives are often linked to a crystal clear perception of the enemy, and the steps required to defeat such an enemy. Mercenary organizations are characterized by their ability to respond quickly and cohesively to a perceived opportunity or threat in the marketplace. Priorities are decided swiftly by senior management and enforced in the organization with little debate. Such organizations are also characterized by a clear separation of work and social life and because of the

absence of personal ties, mercenary organizations are generally intolerant of poor performance. People stay with mercenary organizations for as long as their personal needs are met, and they move on. Disadvantages of mercenary organizations include lack of cooperation between employees chasing different objectives. However, mercenary organizations work effectively when change is fast and rampant, when economies of scale are achieved, or when competitive advantage may be gained through the creation of corporate centres of excellence that can impose processes and procedures on operating companies or divisions. Mercenary organizations also work effectively when corporate goals are clear and measurable, and when the nature of competition is clear.

In fragmented organizations, there is low sociability and solidarity. Employees display a low consciousness of organizational membership. They often believe that they work for themselves, or identify with occupational groups - usually professional. Low level of sociability translates into lack of interaction between employees, and individuals may give of themselves on a personal level only after careful calculation of what they might get in return. Low level of solidarity means that members rarely agree about organizational objectives, success factors, and performance standards. Academic university departments often exemplify fragmented organizations. Fragmented cultures also have their places. Goffee *et al* write that they function well when there is little interdependence in the work itself, when significant innovation is produced primarily by individuals rather than teams – which is a rare phenomenon, when there are few learning opportunities between individuals, or when professional pride prevents the transfer of knowledge.

In communal organizations, there is high sociability and solidarity. Goffee *et al* hold that communal organizations arise when founders and early employees of companies are close friends, working endless hours in tight quarters for their mutual benefit. Their high sociability gives individuals high, sometimes exaggerated, consciousness of organizational identity and membership. Individuals may even link their sense of self with the corporate identity. The high solidarity of communal cultures is often demonstrated through an equitable sharing of risks and rewards among employees. In

such organizations employees are very clear about the competition. They know what companies threaten theirs, what they do well, why they are weak and, how their weaknesses can be overcome. However, Goffee *et al* point out that communal culture may be an inappropriate and unattainable ideal in many business contexts. It seems to work best in religious, political, and civic organizations and not in commercial enterprises, because the in-built in tension between relationships of sociability and solidarity creates inherent instability in business enterprises. However, communal cultures function well when innovation requires elaborate and extensive team work across functions when there are real synergies among organizational sub units and real opportunities for learning, when strategies are more long term than short term, and when the business environment is dynamic and complex.

Of networked, mercenary, fragmented, and communal cultures, each is, characterized by certain artifacts, values and basic assumptions. At the level of the basic assumptions (Schein, 1988), each of these types of culture will also tend to be characterized by different beliefs regarding the relationship to environment, nature of reality, nature of human nature, nature of human activity and nature of human relationships.

Kotter *et al* (1992) identify three types of organizational culture namely, strong, strategically appropriate and adaptive cultures. Strong cultures enhance performance because they provide the needed structure and controls without having to rely on a stifling formal bureaucracy that can dampen motivation and innovation. Kotter *et al* warn though that depending on the nature of the existing environment, a strong culture sometimes may lead to weak performance. A strong culture is akin to a networked culture proposed by Goffee *et al*. Strategically appropriate cultures motivate and align employees to achieve certain objectives or the business strategy. Again, it has been found that such cultures sometimes do not improve organizational performance. This happens if there is a misfit between the strategy being pursued and the operating environment. Strategically appropriate culture can be likened to a mercenary culture as proposed by Goffee *et al* (1996) - please, refer to figure 3.2. Adaptive cultures help organizations adjust according to the needs of the environment. They tend to lie

somewhere in the quadrant of communal culture identified by Goffee *et al* (1996) as seen in figure 3.2.

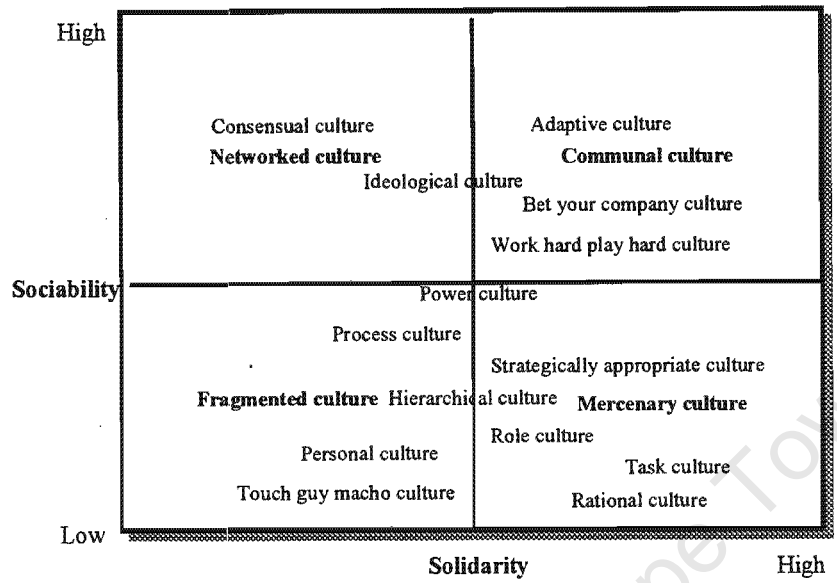

Figure 3.2. Types of organizational culture based on the work of Brown (1995), Goffee *et al* (1996) and Kotter *et al* (1992)

Brown (1995) writes that the Harrison/Handy typology identifies four different types of organizational culture as power, role, task, and person, culture. He asserts that a power culture has a single source of power from which rays of influence spread throughout the organization. These rays are web – like, connected by functional and specialist strings which facilitate coordinated action. The internal organization of a power culture is highly dependent on trust, empathy and personal communication for its effectiveness. There are few rules and little need for bureaucratic procedures. Resource power and, to a lesser extent charisma, are the main bases for the exercise of authority. Brown (1995) points out that the greatest strength of power cultures is their ability to react quickly. According to figure 3.2, power cultures lie somewhere between mercenary and networked culture.

Brown (1995) describes role culture is bureaucratic, the organizing principles being logic and rationality. The strength of a role culture lies in its functions or specialties such as finance, manufacturing, R&D, etc. A role culture lies somewhere between the fragmented and mercenary quadrants as shown in figure 3.2.

A task culture is one in which power is based on expertise rather than position or charisma. This form of culture often develops in those organizations that can focus on specific jobs or projects to which teams may be assigned. Brown (1995) states that task cultures are suitable in those environments where the market is competitive and product life cycles are short. Task cultures therefore can be found in the mercenary culture quadrant.

Brown (1995) writes that person cultures develop when people decide that it is in their group's best interest to organize on a collective rather than on individual basis. The individuals themselves decide on their work allocation. Hence, personal cultures can be found in a fragmented culture quadrant.

Brown says Deal/Kennedy identify four generic cultures namely, the 'tough guy macho culture', the 'work hard – play - hard culture', the 'bet your company culture' and the 'process culture'. The tough guy macho culture develops in an organization when individualists are frequently called upon to take risks and receive rapid feedback on the quality of their actions and decisions. Brown points out that tough guy macho cultures, are unable to benefit from cooperative activities, tend to have a high turnover of staff, and thus, often fail to develop a strong cohesion. Hence, these cultures can be located in the fragmented culture quadrant as seen in figure 3.2.

The work hard - play - hard cultures are characterized by low risk and quick feedback, and emphasize fun and action. They tend to be highly dynamic and customer focused. The work hard-play-hard cultures lie in the communal culture quadrant. Brown (1995) writes that the bet your company cultures exists in environments where risks are high and the feedback on actions and decisions takes a long time. Bet your company organizations include, for instance, large aircraft and ship manufacturers and oil companies. The type of people found in such organizations respect authority and technical competence, and are keen to act cooperatively with colleagues. These kinds of people also have the strength to withstand intensive work pressures. Bet your company cultures can therefore be located in the communal culture quadrant.

Brown (1995) holds that a process culture is a low risk, and slow feedback, culture typified by banks, insurance companies and the civil service. Employees in process cultures tend to focus on how they do something rather than on what they do. They are often protective and cautious, keen to protect the system's integrity, and focused on the technical performance of their duties. Process cultures can therefore be found in far the right of the fragmented culture quadrant.

Brown asserts that Quinn and McGrath have identified four generic cultures namely, the rational, ideological, consensual, and the hierarchical cultures. The rational culture is designed to pursue objectives using productivity and efficiency as the primary criteria of performance. Individuals are judged according to their tangible output and are encouraged to be achievement oriented. The rational culture therefore lies in the mercenary quadrant.

Ideological culture decisions are often a result of intuition, and employees' compliance is enforced through their commitment to organizational values. This culture is characterized by values such as adaptability, autonomy and creativity. Ideological culture therefore lies to the right in the networked culture quadrant.

In the consensual culture decisions tend to be arrived at through participation and consensus and the dominant leadership style is one of concern and support. Individuals are evaluated in terms of the quality of the relationships they enjoy with others and are expected to show loyalty to the organization. Consensual cultures tend to lie in the middle of the networked culture quadrant (please, refer to figure 3.2).

Hierarchical cultures exist to execute regulations while remaining stable and controlled. In these organizations authority is vested in the rules. Power is inherent in those with technical knowledge. Compliance of employees is maintained by surveillance and control and employees are assessed against formally agreed criteria. Hence, hierarchical cultures lie to the left in the mercenary culture quadrant.

The discussion in this section suggests that there is no such thing as a bad or good organizational culture. Organizational culture is judged as good or bad in relation to its context (i.e. the type of environment in which the organization is operating). Advocates of performance improvement through change of culture argue that, to improve performance an organization needs to understand its culture and establi+sh whether it is in unison with the operating environment. If a misfit is found, then such an organization needs to transform its culture accordingly. Different views regarding the mechanism to be used in transforming organizational culture are discussed in the next section.

3.4 Transforming organizational culture

Although writers agree that culture can be transformed, there is disagreement on how this should be undertaken. Jackson notes this controversy and referring to the difficulties involved in implementing TQM programmes, he writes that

> "Another problem points to the talk of introducing a quality culture. There are many different methodologies recommended for implementing quality but we don't really know how to bring about a quality culture and make it stick. As a result, quality programmes fizzle out". (Jackson, 1995, page 33).

According to Jackson, one of the causes of the failure of TQM programmes is that organizations do not know how to transform organizational culture. The claim that organizations do not know how to transform culture seems valid because, of several different approaches proposed by various writers, organizations do not know which is the correct one. There appear to be two main approaches for transforming organizational culture as Miller *et al* (1994) state that

> "There are essentially two processes or sets of activities that will change the culture. The first process is the design or architecture of the organization's work and supporting systems and structure. The second is the learning process or the development of new ways of thinking and behaving".
> (Miller *et al,* 1994, page 32).

Transformation of culture through the design or architecture of the organization's work, supporting systems and structure is akin to transforming it through artifact, creations and values. Miller *et al* also claim that another option is to transform culture through the process of learning. According to Miller *et al,* learning influences culture which, can be changed through learning. It appears that transforming culture through learning is characterized by

- The need to adapt to the environment
- Continuity of the transformation process
- The existence of inquiry and discovery in the transformation process.

Let us discuss the above two culture transformation approaches in more detail.

3.4.1 Transforming culture through artifacts, creations and values

Schein (1988) maintains that organizational culture is influenced by the following primary mechanisms

- What leaders pay attention to, measure and control
- Leader reaction to critical incidents and organisational crises.
- Deliberate role modeling, teaching, coaching by leaders
- Criteria for allocation of rewards and status
- Criteria for recruitment, promotion and dismissal.
- New challenges and crises
- Turnover of key members
- Rapid assimilation of new employees.
- The organization's design and structure.
- Organizational systems and procedures.
- Formal statements of organizational philosophy, creeds and charters.

Most of the above mechanisms are related to artifacts, creations and values. This is in line with figure 3.1, which suggests that culture can be changed through artifacts, creations and values. In turn culture maintains and sustains them. Note that according

to Schein (1988), the term "organizational culture" refers to the basic assumptions held by the organization.

Brown (1995) also identifies change mechanisms that are related to artifacts, creations and values. His list of change mechanisms include

- The societal or national culture within which an organization is physically situated
- The vision, management style and personality of an organization's founder or other dominant leader
- The type of business which an organization conducts and the nature of its business environment.

Schein (1988) proposes a culture change model that views culture as having a life cycle going through the three phases: growth, mid life, and maturity. In the *growth* phase, culture is firmly established by the founder and the competence of the organization is based on this kind of culture. This type of culture which, is associated with the founder or other early leader, is what Kotter *et al* (1992) call a 'strong culture'. It is during this phase that the organization performs very well because the type of culture is in line with the environment. The structure and leadership are also are congruent with the existing culture, but, once the founder leaves the organization and the environment changes, the organization faces survival problems. And, in order to avoid such problems the culture needs to be transformed. Schein (1988) writes that in the growth phase, culture is transformed by, natural evolution, organizational therapy, and evolution through hybrids, or revolution through outsiders. Most of these change mechanisms are related to artifacts, creations and values.

The second phase of the culture life cycle is what Schein terms "mid life". This type of culture can be likened to what Kotter *et al* call a "strategically appropriate' culture; one which aligns the organization to a certain fixed direction or rather, strategy. Unfortunately, the strategy may lose touch with the environment. Once this happens, the organization faces survival problems. Schein claims that during this phase, subcultures, which weaken the organizational culture start to emerge. In this phase culture is transformed by planned change which includes organizational development,

technological seduction, changing through scandal and incrementalism. Most of these change mechanisms are related to artifacts, creations and values.

The last phase is what Schein calls *maturity*. In this phase whilst preserving the glories of the past, culture becomes a constraint to innovation. Schein argues that in this phase culture can be transformed through coercive persuasion, turnaround or reorganization. If this does not work, then it may be destroyed through liquidation, takeover or merger and assimilation. Again, most of these change mechanisms proposed by Schein are related to transforming organizational culture through artifacts, creations and values.

Tunstall (1983) proposes a three - step model for changing organizational culture. It was used in transforming the culture of the American Telephone and Telegraph Company Ltd. (AT & T) in early 1983. The model is shown in figure 3.3

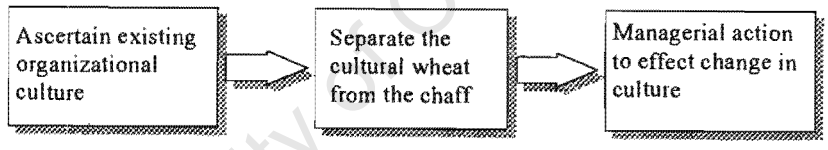

Figure 3.3. A model of cultural change. Adopted from Tunstall(1983).

Tunstall writes that in ascertaining the existing organization culture, special attention should be paid to the customers, employees and shareholders. The question asked here is: 'how are they treated by the organization?' The objective is to establish the strengths and weaknesses of the existing culture. Separating the cultural wheat from the chaff involves retaining cultural attributes that are still needed and abandoning all the cultural chaffs. Taking managerial action to effect cultural change requires revamping all the management systems including structure, human resource development systems, and

symbols. Certainly, these change mechanisms are related to artifacts, creations and values.

Other writers who advocates the change of culture through artifacts, creations and values include Hammer *et al* (1993) who argue that teamwork, empowerment (issues related to organizational culture), are abstractions and generalization around which it is impossible to get one's arm. Hammer *et al* (1993) ask: "how is one supposed to begin working on empowerment if not through the architecture of the work processes?"

According to Hammer *et al* (1993), change of culture can only be achieved through process design. This is analogous to using artifacts and creations.

3.4.2 Transforming culture through learning

There are writers who maintain that organizational culture can be transformed only through organizational learning. Lundeberg (1985) suggests a transformation model triggered by internal and external factors. Lundeberg's model is shown in figure 3.4. According to him, if any cultural transformation is to take place, there must be external enabling conditions such as stiff competition. This is not enough on its own because the internal conditions must permit the intervention to take place. The internal permitting conditions include good co-ordination, readiness, and the existence of teams. A precipitating pressure is also necessary for the transformation to occur. Such a pressure may be caused by a crisis, or poor performance, or originate from stakeholders. Triggering events such as scandal, new management or calamities generate change. These events pave the way for people to undertake a cultural vision. Cultural visioning entails establishing the type of culture required. A change strategy, which stipulates the activities that need to be done, is then developed.

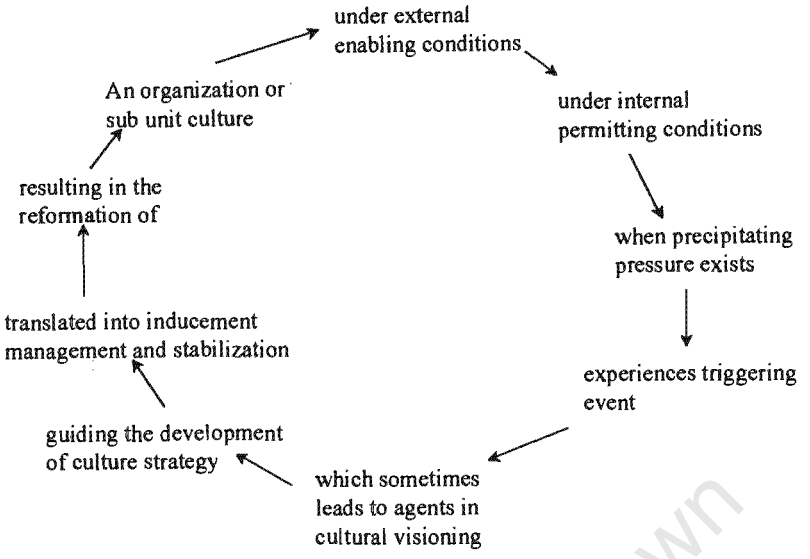

Figure 3.4. Lundeberg model of cultural transformation

The inducement and stabilization action plan is then undertaken, and implemented and the cycle repeats. Lundebrg acknowledges the role of internal factors in transforming culture. By recognizing the need for good co-ordination and the existence of teams, he implies that the organizational design dimension influences the organizational culture dimension. Lundeberg's transformation model is an evolution model, and hence, a typical learning model.

Dyer (1985) proposes a model, which emphasizes the importance of leaders in a cultural intervention process. His model is shown in figure 3.5. This is another typical learning model. However, the model assumes that new leaders are normally given the chance to show their abilities in dealing with crises and that conflict is inevitable between the new and old leadership. In practice this happens in very few instances, and normally it is the new leadership that suffers. For instance, Grant *et al* (1994) report a conflict between Steffen and Kodak's CEO Kay Whitmore, which led to Steffen's departure from the company. Steffen, the new leader, was defeated. The author argues that there is no such a thing as conflict and crises between the new and old leadership, but rather, a crisis between new and old, working practices, or assumptions that may even occur within the same leadership. Dyer's cultural transformation model is a typical learning model.

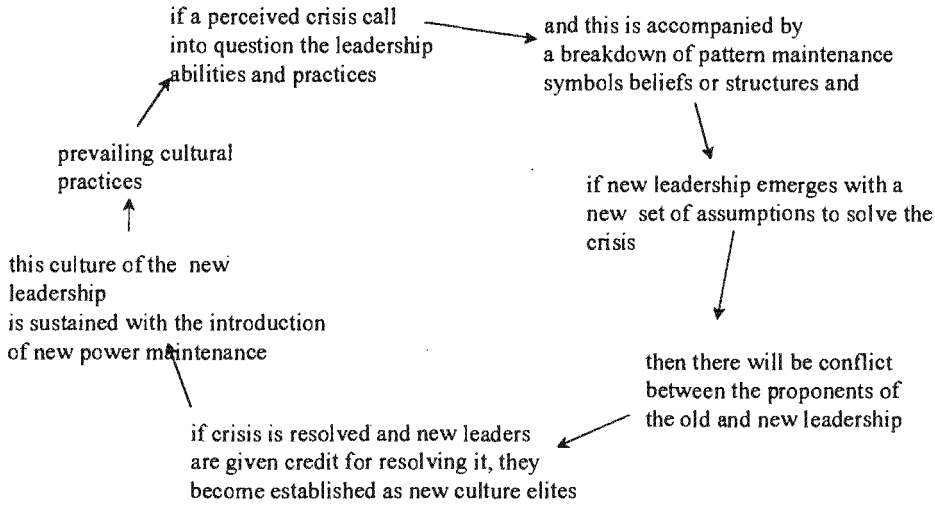

Figure 3.5. Dyer's cycle for cultural evolution

Gagliardi (1986) also proposes a model for culture transformation. His model assumes that any cultural transformation is a continuous process. Cultural transformation according to Gagliardi is a learning process that occurs continuously in the organization. His model is shown in figure 3.6.

Most of the aforementioned models share the view that culture change is essentially a process of learning. Lundberg's model is not only formulated as a learning cycle, but also makes it clear that culture change is realized only through inquiry and discovery. Dyer's model is another form of learning cycle again, highly dependent on the notion of a search for new cultural possibilities. In Gagliard's framework people learn from success, and initially subscribe to certain beliefs and values as a result of learning that has favourable consequences.

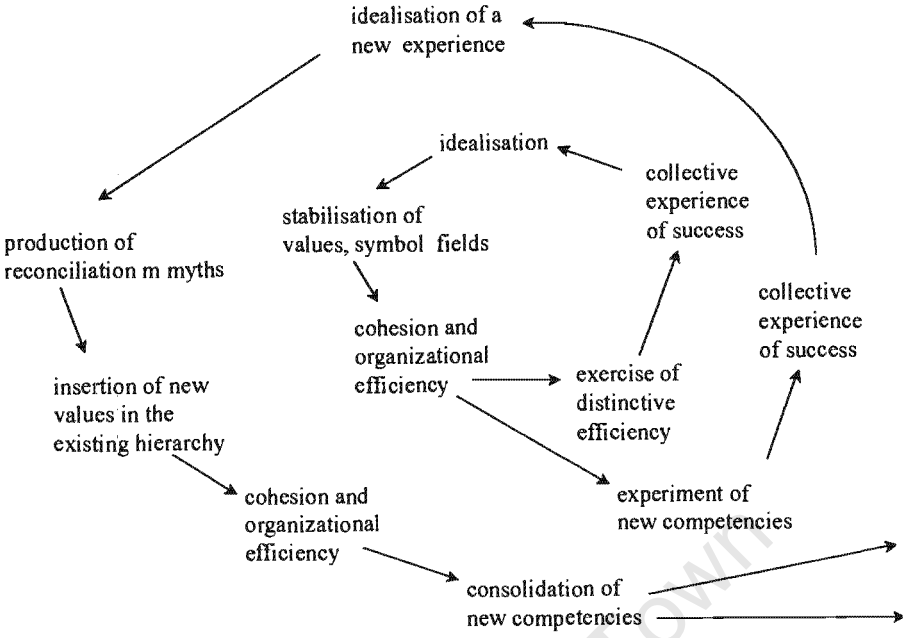

Figure 3..6. Gagliardi's model of cultural transformation.

The existence of a variety of models for transforming organizational culture seems to be a stumbling block for organizations that wish to transform their cultures. This is because they do not know which of these models is appropriate.

3.5 Culture and dimensions of organization

In order to appreciate what dimensions of organization are considered in transforming organizational culture, it will be helpful if the relationship between organizational performance and culture is first explored. Kotter *et al* (1992) write that organizational culture improves performance because

- It creates motivation among employees
- It provides goal alignment
- It provides the needed organization structure and control
- It aligns the organization in a certain direction
- It makes the organization care for customers, employees and stockholders

Brown (1995) holds that organizational culture improves performance because

- Conflict is reduced since social cohesion exists
- Efficient co-ordination and control exist
- Uncertainty diminishes because similar mental models are shared by individuals
- Motivation increases, especially when the goals of the employees and those of the organization align.

Most of the above benefits are related to the dimension of organizational culture, design and processes. Note that internal organizational processes have a lot to do with artifacts and values. Enthusiasts of transformation of organizational culture seem to focus on these three dimensions of organization though their views on how to deal with them differ.

3.6 Conclusion

The objective of this chapter was to support the claim made in chapter one that different writers propose different management intervention methodologies that are based on different theories of organizational decline. Performance improvement through transformation of organizational culture suggests an intervention methodology focusing on the dimension of organizational design, processes, and culture. Since the transformation of organizational culture focuses on a different set of dimensions of organization, it therefore qualifies as a different approach from those discussed in chapter two.

Methodologies for transforming culture suggest that performance improvement can be achieved by creating a fit between the organizational culture, organizational design, internal organizational processes and the environment i.e., between the internal organizational variables and external organizational factors. This implies these methodologies are influenced to a large extent, by the contingency theory.

Hence, the objective of this chapter has been achieved because it has been shown that in comparison to intervention efforts discussed in chapter two, performance

improvement through the transformation of organizational culture focuses on different dimensions of organization and theory of organizational decline.

These findings support the view that more research should be conducted in the field of management intervention aimed at establishing the kind of dimensions of organization that should be considered, and how should this be done so that successful intervention can be achieved.

Chapter Four. Performance Improvement Through Organizational and Action Learning.

> We know from the study of ecology that the essential formula for the continuing survival of an organism is that its rate of learning must be equal to, or greater than, the rate of change in its environment....In organizations this argues for the development and maintenance of a system of organizational learning to monitor environmental change and take appropriate avoiding actions.
> (Garratt, 1983, page 26).

4.1 Introduction

Dumaine (1989) holds that the most successful corporation will be something called a *learning organization,* which adapts to the needs of the consumers. On the other hand, Senge (1990b) points out that increasing adaptiveness is only the first stage in establishing learning organizations. Instead, he states that leading corporations are focusing on generative or rather creative learning, as well as adaptive learning. Generative learning focuses on innovation while adaptive learning addresses issues related to the ability of the organization to adjust flexibly according to the needs of the environment. Argyris and Schon (1978) write that the requirements for organizational learning is not an option but rather a necessity and learning are not an occasional and a sporadic phenomenon, but should be viewed as a continuous and endemic process. All the above writers suggest that organizational performance can be achieved through organizational learning.

There are also writers suggesting that performance improvement can be achieved through action learning, a special form of organizational learning (Garratt, 1987); (Pedler, 1983) (Revans, 1982); (Weinstein, 1995).

The main objective of this chapter, as that of chapters two and three, is to expand on the statement that writers have proposed various intervention methodologies based on different theories of organizational decline. This is done by showing that both organizational and action learning are different to approaches discussed earlier because they emphasize different dimensions of organization and are therefore based on different theories of organizational decline.

The chapter concludes that the existence of both organizational learning and action learning as alternative intervention methodologies, is yet further evidence of disparate opinions regarding the appropriate kind of intervention methodology to be adopted by organizations.

4.2 Understanding organizational learning

Though a lot of work done addresses issues related to learning and organizations, the difference between organizational learning and learning organizations has not been clearly stated. Below is a sample of definitions of organizational learning from various writers.

- Organizational learning is a process of detecting and correcting errors (Argyris, 1977). The term "errors" here stands for any feature of knowledge or knowing that inhibits learning.
- Organizational learning refers to methods of collective learning (Calvert *et al*, 1994).
- Organizational learning is the capacity or process within an organization to maintain or improve performance (Nevis *et al*, 1995).
- Organizational learning is the intentional action of an organization to continuously transform itself through both adaptive and innovative learning (Dixon; in Calvert *et al*, 1994).

Definitions of what constitutes a learning organization include:-

- A learning organization is where people continually expand their capacity to create results they truly desire, where new and expansive patterns of thinking are nurtured,

where collective aspiration is set free, and where people are continually learning how to learn together (Senge, 1990a).

- The learning organization describes an organization that excels at advanced, systematic, collective learning (Calvert *et al*, 1994).

On the basis of the above definitions, organizational learning can be defined as comprising all the activities or initiatives adopted by an organization to deal collectively and continuously with the problems of adaptability and growth in the changing environment. A learning organization is one that devotes itself to organizational learning.

Note that the keys to this definition of organizational learning include *collectivity, continuity, adaptability* and *growth.* The learning initiative must ensure that the learning takes place collectively, wide participation of the relevant stakeholders being necessary. The learning process should also be continuous and not a one-time undertaking. The objective of learning is therefore to ensure organizational adaptability and growth in the changing environment.

Though it is understood that individuals learn (Handy, 1993), can organizations learn? Some writers assert that the term organizational learning is used as a metaphor because organizations actually learn through individuals. For instance, Argyris *et al* (1978) hold that organizational learning is both different from, and conceptually connected to, individual learning. It is individuals who decide and act and not the organization, but they do these things for the group in accordance with the rules for decision delegation and membership. The decisions and actions carried out by individuals are organizational insofar as they are governed by collective rules for decision and delegation. Argyris *et al* believe that so long as there is continuity in rules which govern the behaviour of individuals, the organization will persist, even though members come and go. Individuals therefore continuously learn and alter the existing rules, or rather theories on use, in behalf of the organization. Hence, organizational learning is mediated by the collaborative inquiry of individuals and is transmissible

through management practices, and can therefore take place though individuals come and go.

4.3 Related studies in organizational learning

Though much work has been done in the area of organizational learning, the findings and recommendations given by different writers are very diverse in nature. The literature on organizational learning can be perceived to focus on two related areas: the work related to the conditions that facilitate learning and that related to the nature of learning. The latter can also be divided into work related to the level of learning and work focusing on the type of learning framework that organizations adopt. These are discussed in detail next

4.3.1 Studies that focus on enabling conditions for learning

Kline *et al* (1993) propose ten steps for creating an atmosphere conducive to learning. These include

- Assessing your learning culture
- Promoting positive thinking
- Making workplace safe for thinking
- Rewarding risk taking
- Helping people become resources for each other
- Experimenting
- Creating a shared vision
- Bringing the vision to life
- Systemic thinking, and
- Commitment of leadership.

Barton (1992) also identifies similar conditions. These include

- Promoting independent problem solving
- Adopting an organic system view

- Egalitarianism and respect for individual
- Initiating performance rewards
- Integrating internal knowledge
- Sharing the knowledge
- Apprenticeship and education
- Continuous experimentation
- Positive risk taking
- Integrating external knowledge
- Openness to knowledge from outside, and
- Resources for alliance and networks.

Other writers proposing similar lists of enabling conditions include Nevis *et al* (1995). Their list includes the need to scan the environment, the need to establish performance gaps, concern for measurement, experimentation mind sets, creating a climate for openness, continuous education, the need for operational variety, the existence of multiple advocates, the involvement of leaders and a systemic view.

Schein (1993) provides three main steps for creating an atmosphere conducive to learning. The first is disconfirmation, which entails persuading members of the organization that the current ways of doing things are no longer working. The second is creation of guilt or getting someone's attention. The last step is the creation of psychological safety. This step entails providing

- Opportunities for training and practice
- Support and encouragement to overcome fear and shame associated with making errors
- Norms established to legitimize the making of errors
- Norms created to encourage innovative thinking and experimentation.

Senge (1990a) identifies five disciplines of the learning organization. System thinking is one of the disciplines and it requires understanding the system as a whole, and that systems and business in particular, are bound by invisible fabrics of interrelated actions which often take years to fully play out their effects on each other. According to Senge,

systemic thinking entails the use of qualitative system dynamics to uncover any unanticipated side effects of the system that may be caused by our actions.

The second discipline is what Senge calls personal mastery. He writes that personal mastery goes beyond competence and skills, though it is grounded in them. People with high personal mastery have a clear vision of what they like to be, they have clear purposes for their lives, and they continuously and consistently try to bridge the gap between their vision and the current reality. Above all, they have an internal drive to do so.

Mental models are the third discipline proposed by Senge (1990a). He holds that mental models are deeply ingrained assumptions, generalizations, or even pictures or images that influence how we understand the world and how we take action. He writes that very often we are not consciously aware of our mental models, of their effects on our behaviour. The fourth discipline is building a shared vision and requires that the organization build the capacity to hold a shared picture of the future it seeks to create, and thus foster genuine commitment and enrollment rather than compliance. The fifth discipline proposed by Senge is team learning, which., emphasizes dialogue, and the capacity of team members to suspend assumptions and enter into a genuine thinking together. Senge here stresses the importance of employee participation in the learning process as a backbone of any organizational learning undertaking.

The creation of personal mastery, mental models, building a shared vision and team learning are essentially the enabling conditions that can make learning possible. In the system thinking discipline, Senge proposes qualitative system dynamics as a learning framework.

Other writers whose works focus on enabling factors include Handy (1993). He identifies what he calls 'the necessary conditions for comfortable change' or rather, the lubricants of change. They include a proper selfishness, a way of re-framing, and a negative capability. Proper selfishness requires individuals and hence, organizations to

- Take responsibility for themselves and for their future

- Have a clear view of what they want that future to be
- Want to make sure that they get it, and
- Believe that they can.

Handy writes that re-framing is the ability to see things, problems, situations or people in other ways, to look at them sideways, to put them in another perspective or context. A negative capability is the capacity to live with mistakes without being downhearted or dismayed. The central idea here is that doubt and mistakes must not be allowed to disturb us, because it is from them that we learn.

It seems that most enabling factors proposed by different writers focus on the need to take a systemic view, the need to consider the environment, the need to appreciate the effect of interaction and feedback between people and things. Other enabling factors focus on the need for wide participation, the need to drive out fear and the need for taking action through experimentation.

Most of these enabling factors have a lot to do with certain artifacts, values and basic assumptions held by organizations (Schein, 1988). It appears therefore that most focus on the need to deal with the dimension of organizational culture, processes and to some extent, organizational politics.

4.3.2 Studies that focus on the nature of learning

As mentioned before, studies under this category can further be classified into those focusing at the level of learning and those exploring the type of learning framework. The two areas are interrelated.

4.3.2.1 Studies that focus on the level of learning

Argyris *et al* (1978) identify three levels of organizational learning: single loop, double loop and deutero learning. According to Argyris *et al*, when the process enables the organization to continue its present policies or achieve its objectives, the process may

be called single loop learning. Argyris (1977) compares single loop learning to a thermostat that learns when it is too hot or too cold and then turns the heat on or off. The thermostat is able to perform this because it can receive information about the temperature of the room and take corrective action.

Single loop learning can be likened to adaptive learning (Dumaine, 1989; Senge, 1990b) which makes the thermostat cope with the changing temperature of the room. At organizational level, single loop learning comprises all the efforts taken by the organization to improve performance without challenging the existing working practices, objectives and policies. In other words, the improvement is done within the existing organizational framework. By failing to challenge company objectives and policies, it is claimed, single loop learning can lead to a disaster, especially when the environmental conditions change drastically, calling for new policies and objectives.

It seems single loop learning entails identifying errors and correcting them without finding out the reasons for their occurrence. Argyris *et al* (1978) argue that in single loop learning, members of the organization respond to changes in the internal and external environments of the organization by detecting errors which they then correct so as to maintain the central features of the organization's theory in use. This type of learning enables the organization to remain stable in changing contexts. Argyris *et al* (1978) write that in single loop learning

> "There is a single feedback loop which connects detected outcomes of action to organisational strategies and assumptions which are modified so as to keep organisational performance within the range set by organisational norms."
> (Argyris *et al*, 1978, page 18 - 19).

Norms are the organization's objectives and policies. Proponents of the level of learning approach argue that most organizations fail to survive and grow because they do not adopt double loop learning. If this is the case, why do we find single loop learners still surviving? Argyris (1977) gives the following reasons

- Single loop learners survive because the environment is stable.

- Failing to adopt double loop learning, organizations build the associated costs into the price of the products/services or tax structure. This is particularly the case in unstable environments.
- You can always find few individuals within the organization, especially top executives, who work overtime while the rest work normal hours.

On the other hand, Argyris (1977) states that if the thermostat mentioned in the above example could question itself about whether it should be set at 68 degrees, it would be capable not only of detecting errors, but of questioning the underlying policies and goals, as well as its own model. This is a more comprehensive inquiry called double loop learning. This kind of learning can be compared to generative learning (Senge, 1990b) or innovative learning (Calvert *et al*, 1994). In some cases, Argyris *et al* (1978) argue that error correction requires an organizational learning cycle in which the norms themselves are modified.

Argyris *et al* cite a good example of the activities performed by organizations that may require a double loop learning cycle for instance, the development of new products. The development of an entirely new product demands a new pattern of operations requiring fresh approaches in marketing, manufacturing, advertising etc. This will entail changing the image of the business, redefining the business, and establishing new objectives. Hence, double loop learning demands the restructuring of the norms, strategies and assumptions associated with the old norms. All these changes must be encoded in the organization's theories in use. Argyris *et al* (1978), maintain that double loop learning which strives for growth, conflicts with single loop learning which advocates predictability. Argyris *et al*, focusing on how to promote double loop learning, propose the following steps for changing the learning system.

- Use of workshops and seminars
- Developing internal assumptions that are different from single loop learning
- Encouraging inquiry and confrontation of whatever is being advocated
- Participation of competent people in the seminars and teams
- Establishment of opposing ideas for comparison.

The third level of learning, called deutero learning, is learning how to learn, or sometimes known as second order learning. This type of learning acknowledges that single and double loop learning are not a one-shot undertaking but should be undertaken continuously. Deutero learning is about learning how to restructure at regular intervals so as to exploit any new opportunities. Argyris *et al* (1978) have the following to say about deutero learning:

> "When an organisation engages in a deutero learning, its members learn, too, about previous contexts for learning. They reflect on and inquire into previous contexts for learning...They discover what they did that facilitated or inhibited learning, they invent new strategies for learning, they produce these strategies, and they evaluate and generalise what they have produced."
> (Argyris *et al*, 1978, page 27).

Simply speaking deutero learning critically studies the adequacy of the existing learning level(s) practiced by the organization.

The three levels of learning: single loop, double loop and deutero learning look at the need either to challenge or to accept the existing artifacts, values and basic assumptions of organizations. These levels of learning would therefore argue that in order to improve performance, organizations must focus on organizational culture, and to some extent, on organizational design and processes.

4.3.2.2 Studies that focus on the type of learning framework

The second category of literature concerned with the nature of learning is that which proposes frameworks, or rather, processes that can be used to facilitate learning. The literature in this category can further be divided into two groups. There are writers who propose learning frameworks that are linear in nature and those who suggest that such frameworks should be continuous and never ending.

Learning as a linear process

Nevis *et al* (1995) identify three stages which the organization has experience in the process of learning. First in their list is *knowledge acquisition.* In this stage the development or creation of skills, insights and relationships is undertaken. Second is *knowledge sharing,* or the dissemination of what has been learned, to other people in the organization. The last step is *knowledge utilization,* which requires the integration of learning so that it is broadly available and can be applied generally to new situations. Nevis *et al* maintain that most studies of organizational learning focus on the acquisition of knowledge and, to a lesser extent, on the sharing or dissemination of the acquired knowledge (knowledge transfer), the first and second stages. Less is known about the assimilation process, the third stage in which knowledge becomes institutionally available, as opposed to being the property of few individuals in the organization.

Schein (1993) proposes a similar linear process model. He identifies three types of learning that require different time horizons and apply at different stages of the organization change process. The first type is *knowledge acquisition and insight.* This is the collection of information and knowledge through various kinds of cognitive activities. Schein (1993) argues that in order for the acquisition of knowledge to be successful, there are two extra conditions to be fulfilled. These include: *the acquisition of habits and skills,* the second stage of learning, and *emotional conditioning and learned anxiety,* which is the last stage in the learning process. The acquisition of habit and skill learning is symbolized by the use of carrot instead of a stick, the creation of incentives to do the right thing and the tolerating of errors. This type of learning enables people in organization to be open and abandon cultural habits such as 'saving faces and protecting ourselves'. This type of learning should be supported by habit modification.

Schein (1993) identifies two types of anxiety. Anxiety 1 is the feeling associated with an inability or unwillingness to learn something new because it appears too difficult or disruptive. It may prevail because of memories of past failures. On the other hand,

anxiety 2 is the fear, shame, or guilt associated with not learning something new. The objective of the third stage of learning therefore, is to create anxiety 2, which should be greater than anxiety 1 to enable the organization to learn. Schein (1993) cautions that anxiety 2 should not be so great to create defensiveness and paralysis. Creation of guilt or anxiety 2 is akin to getting someone's attention. But, how does one create anxiety 2? Schein argues that this can be achieved through the creation of psychological safety, and through parallel learning.

Learning as an on going process

Handy (1993), drawing from the work of Kolb, views the learning process as an on going cycle and he terms it the *wheel of learning*. He suggests a four-stage wheel of learning model shown in figure 4.1. Handy writes that the wheel starts with a question to be solved, a dilemma to be resolved, or a challenge to be met.

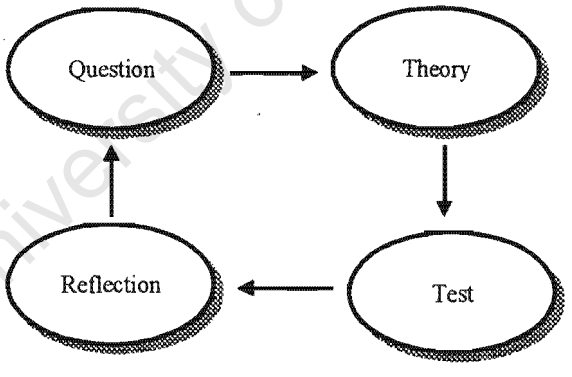

Figure 4.1. The Wheel of Learning. Adopted from Handy (1993)

The second stage is speculating about the answer, hypothesizing a certain theory that explains the causes of the problem. In other words, a theory is a proposition on what should be a solution to the question or problem. The theory is then tested in the third stage. If it does not work, another theory has to be speculated upon and tested The fourth stage is reflection. This stage inquires as to *why* the theory turned out to be true

with regard to the question. This stage helps to internalize the knowledge gained through the process.

Advocates of the learning framework seem to believe that the framework (whether continuous or linear), can be used to improve performance by focusing on issues related to organizational design, culture, or processes. However, it is worth noting that there seems to be no empirical evidence suggesting that the learning framework may be adopted to improve performance through organizational politics.

4.4 Intervention through action learning

In the last three decades or so a lot of attention has been paid to action learning and the influence of such efforts on organizational performance has been widely publicized, see Garratt (1987). Some writers argue that action learning efforts succeed in producing effective intervention because they link learning to actions. Others claim that action learning efforts succeed because they involve employee empowerment and provide a much greater learning curve (Weinstein, 1995). In this section a discussion on the kind of organizational dimensions that action learning efforts focus is undertaken.

4.4.1 What is action learning?

There are many definitions of action learning. Weinstein (1995) provides a list of various definitions given by different writers. For our purpose we shall define action learning as a *personal development* model where a *group of people* learn by working on *real problems interactively* and *autonomously* through *questioning* and *reflecting* in order to gain insight and understanding, and consider how to *behave/act* in future.

4.4.1.1 The elements of action learning

Weinstein (1995) identifies five components of action learning models; the set, real projects, the process adopted by the set, the set advisor, and the duration of action learning projects.

The Set

The set is a small group of people, normally five to eight, who meet regularly, ideally once a month for a day.

Real projects

These are for each person to work on. Boddy (1981) writes that the issue of how to generate and select projects deserves consideration of a range of project selection levels. He identifies three of these. He states that one may

- Ask senior management to suggest projects
- Generate information from participants about problem areas, formulated into projects by trainers/senior management.
- Request participants to generate their own projects.

Boddy maintains that, in order to ensure the feasibility of action and the degree of commitment to them by the clients, the emphasis must now switch to using problems, which more closely affect the participants and have been suggested by them. He presents a checklist of questions for project selection. These include

- Will it involve the participant in bringing about significant change?
- Bearing in mind the time and skills available, is the project feasible?
- Are the risks of failure (e.g. in money, or reputation)sufficiently high to stimulate, without being too threatening?
- Is the problem sufficiently ambiguous to require imaginative and creative solutions?

- Will the project expose the participant to different perspectives and ways of thinking?
- How highly committed is the client to the success of the project?
- Is implementation within the authority of the plant management?

Criteria for selection may include for instance,

- Relevance of the project to the survival and growth of the organisation.
- Commitment of the client to the project.
- Feasibility for implementation in terms of time, skills and authority.
- Complexity of the problem requiring creative solutions

Boddy classifies projects according to the type of setting in which they are to be executed and the nature of the tasks involved. Both setting and task can be familiar or unfamiliar to a particular set member. Boddy's classification is shown in table 4.1. Own job projects can include, for instance, a marketing manager pursuing a marketing related project in that company. Technical expertise projects might include a marketing manager doing a marketing project in another company. Internal exchange projects could involve a marketing manager doing a production project elsewhere in his own company, and external exchange projects might require a marketing manager to do a production project in another company.

Table 4.1. Types of action learning projects. Adopted from Boddy (1981).

Familiar task	***Unfamiliar task***	
Own job projects	Internal exchange projects	***Familiar setting***
Technical expertise exchanges	External exchange projects	***Unfamiliar setting***

On the other hand, Garratt (1983) writes that own job projects tend to be effective for personal development and the reinterpretation of specific jobs within an organization. Internal exchanges tend to be effective for personal development and establishing better links between specialist functions within an organization. External exchanges tend to be

highly effective for personal development and in helping the client organization learn to value different experiences and views.

Finally, technical exchanges tend not to be effective for the development of managerial problem solving because of their concentration on technical puzzles, but are useful for the dissemination of best practices.

The Process

Weinstein (1995) identifies four main steps in the action learning process. They form a spiral of learning similar to the wheel of learning proposed by Handy (1993). The action learning steps include

Airspace

This is the time when a presenter reports to the set members on what s/he has done since the last set meeting.

Listening actively

Set members listen actively so as to follow what the presenter says. This enables the set members to construct scenarios, and identify gaps or inconsistencies in the presentation.

Questioning

Weinstein (1995) writes that questions are meant to clarify points, to check out any avenue of thought which they think can help the presenter and to follow up on something the presenter has said. Only questions meant to help the presenter think, are to be asked. Debate is to be avoided; dialogue encouraged. Closed questions beginning with 'why' should be avoided. The best questions that can help create dialogue and not debate are those which begin with what, how, when and where.

Reflecting

This is the process of recalling events, feelings, actions and thoughts experienced. It entails mirroring what has been said by, both the presenter and other set members. Weinstein maintains that no judgements, advice or solutions are to be given in the action learning process.

The set advisor

The set advisor is the person who facilitates the process. Casey (1987) identifies five functions of the process advisor as

- Facilitation of giving,
- Facilitation of receiving,
- Clarification of the action learning process
- Helping others undertake the above tasks.
- Acting from time to time as personal consultant to set members in the group situation

Time

Weinstein (1995) holds that action learning programmes take three to six months.

4.4.1.2 Action learning and the equation of learning

Pedler (1983) writes that "learning is a combination of selected past knowledge reorganized on the basis of few discriminating questions, that is, learning is equal to the sum of P and a few Qs. P stands for programmed knowledge; that which we already know, contained in books, libraries, polytechnics - the answers that we have gleaned from solving yesterday's problems. Q is the discriminating question put in conditions of chaos and uncertainty and in the absence of a definite answer. Such a question may lead us to a course of action rather than to an answer."

Garratt (1983) states that for survival and growth the rate of learning must be greater than or equal to the rate of change in the environment.

4.4.1.3 Action learning and other paradigms of learning

The relationship between action learning and other learning paradigms can be shown with the help of the cube of learning (Boisot *et al,* 1987) displayed in figure 4.2.

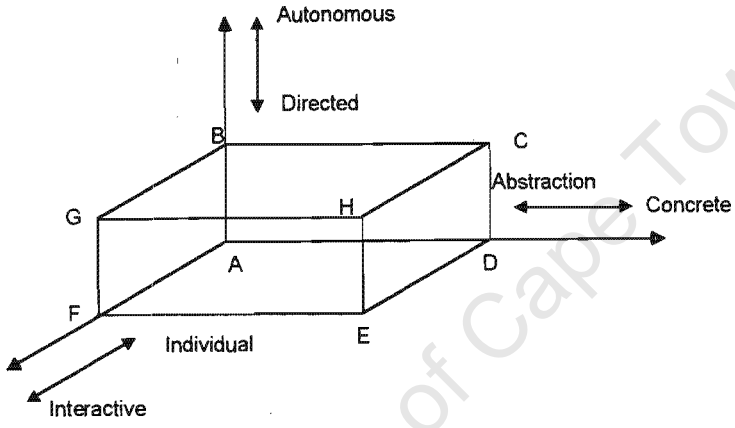

Figure 4.2.The cube of learning. Adopted from Boisot *et al* (1987).

Vertex A: An individual learning by working on a hypothetical problem in a textbook.

Vertex B: An individual learning by working on a hypothetical problem heuristically.

Vertex C: An individual learning by working on a real problem heuristically for instance, a lathe operator watching another as part of the on-job training.

Vertex D: An individual learning computer software using a user manual.

Vertex E: A group of learners learn by working on a real project under a supervisor. For instance, machine operators working on a

project in a firm under the instruction of a senior line manager.

Vertex F: A group of learners conducting a laboratory experiment under the supervision of an instructor.

Vertex G: A group of learners working out a hypothetical problem heuristically without an instructor.

Vertex H: A group of learners working on a real problem heuristically without an instructor i.e. action Learning.

Boisot *et al* (1987) write that vertex H provides the most effective learning practice.

4.4.1.4 Action learning and learning styles

Weinstein classifies people according to the kind of learning styles they adopt. They are; activists, theorists, pragmatists, and reflectors. She argues that action learning demands the application of all styles of learning.

Activists

Activists enjoy the here and now, dominated by immediate experiences, fire fighting and tend to thrive on the challenge of new experiences but are relatively bored with implementation and long term consolidation.

Theorists

Are keen on basic assumptions, principles, theories and models. They prize rationality and logic. They tend to be detached, analytical and unhappy with subjective or ambiguous experiences. They like to assemble disparate facts into coherent theories. They like to make things tidy and fit them into rational schemes.

Pragmatists

Positively search out new ideas and take the first opportunity to experiment with applications. The sort of people who return from management courses brimming with new ideas that they want to try out in practice, they respond to problems and opportunities as to challenges.

Reflectors

Like to stand back, ponder over experiences and observe them from different perspectives. They collect data, analyze it before coming to any conclusions. They like to consider all possible angles and implications before making a move, so they tend to be cautious. They enjoy observing other people in action and often take a back seat at meetings.

Action learning requires one to be strong in all styles so that one can traverse the spiral of learning successfully. To understand thoroughly the nature of action learning efforts, it is worth exploring their underlying assumptions and principles.

4.4.2 The underlying assumptions of action learning

From the above, the underlying assumptions of action learning appears to be based on the following precepts:

- Learning is the only to enable organizations to cope with the changing environment. If organisations are to survive and grow, they must learn.
- The only resource capable of learning in the organisation is human. Action learning focuses on people. This view is also shared by Garratt who writes

> "The essence, as I saw it, was that the only resource capable of learning in the organisation is people that comprise it. ...So, the keys to organisational survival and growth must be within the hands of all those who are members of the organisation." (Garratt, 1987, page 42).

- Learning is effective if it involves a group of people who learn autonomously by working on real projects.
- Learning is a basic need of humankind. It is therefore a basic need of the organisation. This view is also shared by Ackoff who states that

> "Recall that learning is the process of development. There is no better way to learn how to satisfy one's own needs and legitimate desires and those of others in making decisions and evaluating their consequences.....therefore, when we say that it is a responsibility of an enterprise to develop its members, this implies providing them with an opportunity to participate in decisions that can affect their competence, that enable them to develop." (Ackoff, 1994, page 56 - 57).

4.4.2.1 The underlying principles of action learning

- The first underlying assumption of action learning indicates the need for organisations to learn faster than the pace of change. As mentioned before, knowledge is made up of two components namely, formal knowledge and that acquired by questioning and reflecting. The former can be a result of formal training or just obtained from experience. If the changes in the environment are not significant, formal knowledge can suffice, but if the environmental changes are drastic, knowledge acquired by questioning and reflecting is essential. The bottom line is that the rate of learning must be equal to, or greater than, the rate of change.
- The second underlying assumption identifies the need for using employees as a means for learning. This means that action learning is a personal development programme.
- The third underlying assumption, which appears to be related to the second, points to the need for identifying the components of action learning. These include a set, or rather a group, of about six to eight people who work autonomously, a set advisor, a real project for each set member, the methodology for conducting the set meetings, and a time frame stipulating the duration of the model. The methodology adopted in action learning parallels that of the method of science. Action learning starts with a problem or rather, a question, about an issue to be addressed. The set member proceeds to propose a theory that answers the question. This theory is

tested, or rather implemented. If the theory works out the set members reflect, which normally leads to a new question.

- The last underlying assumption underpins the fact that action learning empowers the employees. This is achieved through employee involvement in issues that affect them and in the manner in which the action learning process is undertaken. The emphasis is on dialogue.

Proponents of action learning would argue that the methodology helps organizations study the influence on performance of issues related to organizational culture, processes and design. They would argue that set members should be assigned to real projects related to any of these dimensions (for instance, see Mwaluko and Ryan (1999).)

4.5 Conclusion

In this chapter it has been shown that the majority of writers who advocate performance improvement through organizational learning emphasize almost similar dimensions of organization. For instance, while those who concentrate on the enabling conditions focus more on organizational culture, processes, and to some extent organizational politics, advocates of the levels of learning tend to pay more attention on organizational culture, design and processes. Writers who focus on the type of learning framework seem to consider organizational processes, culture and design.

It has also been shown that supporters of action learning seem to claim that their approach considers organizational culture, design and processes.
Since both organizational learning and action learning focus on improving competencies and capabilities of organizations so that they can deal effectively with the changing environment, they all seem to be influenced by the resource based theory, and to some extent, the contingency theory.

The objective of this chapter has therefore been achieved; to show that performance improvement through organizational learning and action learning seem to subscribe to

different dimensions of organization and hence, to a theory of organizational decline than those of intervention methodologies discussed in chapters two and three.

The research problem

Different reasons for the failure of intervention efforts to produce successful results have been given by different writers as shown in chapters two through four. These reasons, which appear to be at the level of theory, methodology and method for management intervention, guide writers to design intervention methodologies that consider different dimensions of organization.

At the level of theory it has been established that though writers agree on the view that intervention methodologies and methods fail because they are based on inadequate theories, they however differ on what an adequate theory is.

At the level of methodology and method, table A summarizes the findings of chapters two through four. The table indicates dimensions of organization perceived as crucial for the success of different methodologies and methods. In other words, the methodologies and methods in table A require the identified dimensions of organization to be considered in their design. The table also shows the theories of organizational decline on which such methodologies and methods tend to be based.

Note that a score of 3 in a given cell indicates that a given dimension of organization is highly considered by a given methodology or method while a score of 1 indicates that the dimension is least considered. A blank cell signifies that no evidence was found that such a dimension is considered by a given methodology or method. Similarly, a core of 3 indicates that such a methodology or method is highly influenced by a given theory of organizational decline whilst a score of 1 shows otherwise. A blank suggests that evidence was not found that a given methodology or method is based on a given theory of organizational decline.

The following conclusions can be drawn from table A.

- There appears to be a conflict between methodologies and methods about what dimensions of organization should be considered. Note that the kind of dimensions considered by a given methodology or method differentiates it from other

methodologies or methods. The question regarding the kind of dimensions of organization that should be considered in the design of intervention methodologies, seems to be troubling other writers as well, for instance, Jackson (1995), writes that

> "We have not pretended to know what makes them (organizations) reasonable places to work in. I still would not claim to be sure whether it is getting the structure right or the process right or the culture right, or dealing with politics. It is probably something of all these things, but we need to carry out more serious research to be sure.. ."
> (Jackson, 1995, page 36).

Table A. Dimensions of organization that are crucial for the success of different intervention methodologies and methods, and their corresponding theories of decline.

Level of Methodology						**Level of Method**			
Generic Methodologies			Specific Methodologies			Continuous Improvement	Radical improvement		
Abstract based	Activity based	Result based	Culture	Learning	Action Learning	TQM	BPR		
3	3	3	3	3	3	3	3	Internal processes	**Dimensions of Organization**
1	1	1	1	3	2	3	2	External processes	
3			2	3	3	2		Design	
3			3	3	3	2		Culture	
1						1	1	Politics	
1	1	1	2	1	1			Natural selection	**Theories of Organizational Decline**
3	1	1	2	3	3	3	3	Resource based	
2	3	3	3	1	1			Contingency	
						1		Misperceptions of feedback	
								Referent organization	
								Complementary	

- Though methodologies and methods may subscribe to similar dimensions of organizations, they attach different priorities to them. This also applies to the theories of organizational decline.
- There seems to be conflict about the type of theory of organizational decline on which methodologies and methods should be based. Since, a theory of organizational decline and a theory for management intervention are two sides of the same coin, this implies that there is also conflict regarding the kind of theory for management intervention that is supposed to guide the design of intervention methodologies and methods.
- Though it may be accepted that a complementary theory of organizational decline is relatively adequate compared to other theories of organizational decline shown in table A, we cannot hold that no other theories of decline are relatively adequate compared to the complementary theory of decline.

One may ask at this juncture what conclusion can be made in cognition regarding a certain theory, methodology or method if there appear to be different views about it some of which are in conflict? Pepper (1942) faced a similar problem when discussing the claims of authority and certainty (to be discussed in detail in chapter five) as an ultimate criterion of knowledge. He wrote that

> "Since the claims of authority as an ultimate criterion of knowledge are today almost entirely abandoned, I shall begin by pointing out the reasons for this abandonment. These will be found both convincing and credible for nearly everyone in our generation. The reasons should be marked well, for exactly the same reasons hold for abandoning the claims to certainty as ultimate criterion of knowledge. The difficulties with authority as an ultimate criterion of knowledge are: (1) that supposedly infallible authorities often conflict, (2) that the competence of an infallible authority is often seriously questioned in terms of other criteria, (3) that in the event of conflicting authorities or questioned authority, an appeal is customarily made to other criteria, which often attain what can scarcely be denied to be cognitive success. In view of these three deficiencies it is argued that authority is not an ultimate criterion of knowledge..."(Pepper, 1942, page 19).

According to Pepper (1942), a conflict between different cognitive claims of knowledge serves as a justification for a search for an alternative (new) claim.

One may argue along the same lines that, since there are different claims regarding the type of intervention methodology which should be adopted by organizations, and such claims sometimes appear to be in conflict, more research needs to be done in this area. Such research should be aimed at developing an alternative intervention methodology with a high possibility of creating successful intervention.

Since there are also different claims as to the kind of theory for management intervention that should guide intervention methodologies, there is a need for more research to be done in this area too. This research should be aimed at developing an alternative theory for management intervention that can guide the design of intervention methodologies.

Hence, the research problem raised in this thesis is:

> What alternative intervention methodology can have a high possibility of creating successful intervention in business management problems, and on what kind of theory should such a methodology be based?

The search for an alternative intervention methodology starts with the development of a theory for management intervention. This is undertaken in Part Two of this thesis.

PART TWO

Formulation of the Management Intervention Framework

Chapter Five. The need to Treat Inquiry as a Philosophical Exploration.

> The sustained effort at wondering critically about such comprehensive issues is essentially the philosophical quest... What does "comprehensive" mean in this context? It does not mean that philosophers ignore minute issues. They often deal with them. It means, instead, that even the smallest questions of philosophy rise out of and connect back into questions so inclusive that they are extremely difficult to delimit. (Ferre, 1995, page 2).

5.1 Introduction

The management intervention framework adopted in this thesis holds that in order to design an intervention methodology with a high possibility of producing successful results, three interconnected conditions need to be satisfied. The first condition requires that inquiry must be treated as a philosophical exploration. The second condition needs adopting the output of this to develop a theory for management intervention. The last condition requires that the design of an intervention methodology be guided by the developed theory. While the second and third conditions of the framework are discussed in chapter six and seven respectively, the first condition is the subject of this chapter.

In particular, this chapter focuses on two major issues; why should inquiry be treated as a philosophical exploration, and how can this be achieved.

In exploring the reason for treating inquiry as a philosophical exploration, the chapter first discusses the meaning of inquiry and its relationship to management intervention. It is argued that since management intervention is a form of inquiry, treating the latter as a philosophical exploration and adopting the output to design an intervention methodology is

therefore justified. Various key issues in philosophy; metaphysics, epistemology and axiology are also examined. Such examination is necessary because these issues are perceived as building blocks of inquiry. Using the key issues in philosophy, it is argued that treating inquiry as a philosophical exploration is important because it enables the knowledge created to be based on a philosophy that is adequate; a philosophy which is both cognitively and ethically adequate.

The chapter holds that in practice, treating inquiry as a philosophical exploration can be achieved by a methodology, whose design has been guided by the management intervention framework mentioned above.

The remaining part of the chapter is then devoted to discussing the implications of basing inquiry on an adequate philosophy. Drawing from the literature on validation of created knowledge, it is concluded that an inquiry based on an adequate philosophy is more likely to produce knowledge which is both relevant and highly reliable. This conclusion is the main contribution of this chapter.

5.2 The meaning of inquiry

According to Churchman (1971), inquiry is an activity that creates knowledge, and knowledge is reflected in things that have potential to facilitate action if a need arises. This means that inquiry does not necessary have to culminate into action. Vickers (1968) also acknowledges this distinction and identifies three levels of inquiry. The levels (which Vickers terms fields of inquiry), include reality judgment, value judgment and instrumental judgment. According to Vickers, reality judgment is judgment of fact about the state of the system both internally and in its external relations. Value judgment refers to judgment about the significance of these facts to the inquirer. Instrumental judgment refers to the choice of action to bridge the gap between what is and what should be i.e., between reality

and value judgment. According to Vickers, making reality and value judgment does not necessarily mean that one also has to make instrumental judgment.

Peirce gives a similar definition of inquiry as a process of struggle to pass from a state of doubt to a state of belief (Hausman, 1993). Doubt occurs when regularity or habit is disrupted, and belief happens when habit is established. Since the term "habit" here may imply the way one perceives the world, the way one acts, or both, Peirce seems to support Churchman's and Vickers's view that habit can be established with or without action being taken.

Although the above definitions of inquiry given by Churchman (1971), Peirce (Hausman, 1993) and Vickers (1968) are acceptable, they fail to capture the critical nature of inquiry. To capture this, we define inquiry as a philosophical exploration: a critical thinking activity that produces knowledge. Ferre (1995) also adopts this definition of inquiry. We shall however, adopt the definition of knowledge as given by Churchman (1971) and Vickers (1968).

The term "critical thinking" is used here with the meaning defined by both Kant and Hegel (Bubner, 1982). According to Bubner (1982), one meaning of critical thinking stems from the Kantian programme for transcendental philosophy and signifies the testing of legitimacy. It is a primordial act of unprejudiced testing of the validity claims of knowledge. The other meaning goes back to the Young Hegelians' attitude to the opposition of theory and practice.

Hence, by nature critical thinking has a high possibility of creating knowledge that is both cognitively and morally (Pepper, 1942) adequate, and this is the advantage of defining inquiry as a philosophical exploration.

Inquiry is a philosophical exploration not only due to the way it is pursued, but also because it is always based on a certain philosophy. This view is supported by Linstone and

Murray (1975), who state that for any scientific technique, theory, or hypothesis, there is always some philosophical basis upon which that technique, theory, or hypothesis fundamentally rests or depends. Since techniques, theories or hypotheses, are created through the process of inquiry, this implies that there is also a philosophical base for any kind of inquiry.

Though less is known regarding the relationship between management intervention and philosophical exploration, the relationship between the latter and inquiry is well known as indicated in the above discussion. Hence, to justify the adoption of the management framework mentioned earlier, the thesis perceives management intervention as a form of inquiry.

In order to appreciate the reasons for pursuing inquiry as a philosophical exploration, let us first discuss the building blocks of the latter.

5.3 Key issues in philosophy

In order to understand the importance of treating inquiry as a philosophical exploration and considering how this can be achieved, it is necessary first to discuss the three key issues in philosophy. As mentioned before these issues include metaphysics, epistemology and axiology; the theories of reality, knowledge and values respectively (Ferre, 1995).

5.3.1 Metaphysics

Metaphysics addresses issues related to the nature of this world in which we live. There appear to be three approaches that writers adopt in discussing metaphysical issues. Some adopt a systematic approach. Others make use of metaphors, and there are writers who use text to explain issues related to metaphysics. While both the metaphorical, and textual,

approaches adopt a synthetic perspective in discussing metaphysics, a systematic approach takes an analytical stance.

5.3.1.1 A systematic approach to metaphysics

Writers in this camp identify a number of issues that are addressed by metaphysics, and discuss these issues in a systematic way. For instance, Butler (1968) identifies five main issues addressed by metaphysics; cosmology, the nature of man, the nature of God, the question of number, and the theory of existence (ontology).

According to Butler, cosmology addresses issues related to space, time and causality. For instance, questions such as whether space and time are external and independent of us, or internal and is the order according to which individuals must experience events. Butler writes that there are two extreme views on the question of space and time: idealism and realism. Realists believe that space and time are independent of man. Idealists hold that space and time are internal to individuals and are the way in which individuals experience events.

Causality focuses on issues related to the origin of the world; whether the world was created by God, or just evolved over time. On the nature of man, metaphysics addresses issues such as whether man is composed of a physical body, a spirit, or just mind. Metaphysics also addresses the question of number. Do we believe in one reality, two realities, or many realities; are we monists, dualists or pluralists respectively?

Another dimension of metaphysics is captured by the question of existence or rather, ontology. On this issue Butler writes that questions such as "What do we mean by existence?" "What do we mean when we say that something *is* and what does the infinitive *to be* mean?"

Hamlyn (1984) also takes a systematic view in discussing metaphysics and identifies issues similar issues to those mentioned by Butler. According to Hamlyn, metaphysics addresses issues related to appearance and reality, the question of existence, the concept of substance, issues related to particularity and generality of phenomena, the number of realities (monism and pluralism), issues related to time and space, and issues related to the nature of mind.

The main draw back of a systematic approach is that it does not give an integrative account of metaphysics because the issues are not perceived as interacting in a certain way. A better and more useful definition of metaphysics can be obtained if the interwoven nature of issues is considered.

5.3.1.2 A metaphorical approach to metaphysics

The use of metaphors entails the use of one part of experience to illuminate another, to help us understand, comprehend, and describe another part that was hitherto not intelligible. Pepper describes a metaphorical approach to metaphysics in the following manner.

> "A man desiring to understand the world looks about for a clue to its comprehension. He pitches upon some area of commonsense and tries if he cannot understand other areas in terms of this one. This original area becomes then his basic analogy or root metaphor. He describes as best he can the characteristics of this area, or, if you will, discriminates its structure. A list of its structural characteristics becomes his basic concepts of explanation and description. We call them a set of categories...He undertakes to interpret all facts in terms of these categories."
> (Pepper, 1942, page 91).

Using this concept, Pepper develops four world theories and their corresponding categories. According to Pepper, a world theory is a cognitive assumption about the world held by the inquirer. It is a way in which reality is perceived and understood. Pepper calls such a theory, a "world hypothesis". The four world theories include Formism, Mechanism, Contextualism and Organicism with Similarity, Machine, Events, and Organic

processes, as respective root metaphors. Pepper maintains that these four world theories are relatively adequate in the sense that they can explain any fact submitted to them; they have unlimited scope, coherence and consistency compared to other theories such as animism and mysticism.

Formism

According to Pepper, Formism asserts that phenomena are made up of similar things, and in order to describe and understand them we need first to develop a classification according to various forms. The root metaphor of Formism is therefore Similarity. The classification is aided by the three categories of Formism which includes norms, matter for the exemplification of norms, and principles of exemplification which materialize norms. A norm is a complex set of characters. A character is made up of qualities and relations of phenomena. A quality might include things like colour, size, or performance of the organization. A relation is a similarity between two or more particulars. The only difference between a norm and a set of characters is based on the fact that a norm is a plan and hence, rarely achieved. For instance, an organization may have a norm, or rather plan, of becoming a leader in its industry, but because of internal and external constraints it might fail to achieve such a plan.

For the norms to be acknowledged, matter is required to exemplify them. The principle of the exemplification, which materializes norms, is essentially the connection between the norms and matter, which exemplifies the norms. The principle of the exemplification therefore links the first category to the second. This link is what Pepper calls "a participation". For instance, if we say, "performance is poor", this is a sentence epitomizing the three categories. The term "poor" is a norm and the term "performance" is a matter exemplifying the norm. The two are connected by "is" which is the principle of exemplification i.e., a participation. The three categories proposed by Pepper are similar to the categories given by Peirce in his exposition of semiotics and phenomenology (Hausman, 1993). Peirce on semiotics identifies three categories namely signs, objects and

interpretations. A sign may be likened to a norm, an object to a particular or matter that exemplifies the norm, and an interpretation to participation or a connection between the first and second category. Moreover, similarity exists between Peirce's phenomenological categories and Pepper's categories of Formism. Peirce's first category of firstness, is a category of quality (Hausman, 1993). Every phenomenon has a qualitative aspect. We have seen that quality is related to characters that make up Pepper's norms.

The second category is that of facticity. Hausman (1993) argues that secondness is that aspect of phenomena encountered as resistance because when one thing the first, is related to a second thing, there is a degree of opposition in the contrast between the two relata. Qualities as such do not resist but, as embodied, they do. Secondness can therefore be likened to matter that exemplifies the norms. Hausman (1993) further states that the first two categories are not in themselves categories of intelligibility. They do not make phenomena intelligible. Intelligibility requires mediation, a relation of one thing to another by means of a Third. Thirdness therefore links the two categories. Thirdness can therefore be likened to the principle of exemplification that materializes norms; a connection between the norms and matter that exemplify them.

Evaluation

It is possible to appreciate how Formism explains metaphysical issues. For instance, regarding appearance and reality Formism would argue that we understand reality through appearance. This is because the concept of norm seems to signify appearance and the idea of matter that exemplifies the norm, appears to represent reality. Since Formism maintains that, in order to acknowledge the norms, matter is required to exemplify them, it tends to suggest that in order to understand reality one needs to make use of appearance, and vice versa.

On the question of existence, Formism seems to suggest that phenomena exist if they have norms and matter that exemplify them. On the nature of substances, Formism holds that substances exist as particulars, but it is possible to identify certain similarities in their

characters. Hence, substances also exist as generals. Since Formism is analytical in nature (Pepper, 1942), it therefore seems to advocate pluralism in metaphysics. However, because it maintains that phenomena exist as generals, it suggests that although there are many realities, their number can be reduced through classification. On the issue of time, Formism tends to suggest that phenomena do not change over time. Because Formism is built on the concept of norms, and matter that exemplifies them, it therefore implies that though phenomena exist independent of our minds as matters, it is our minds that help us understand them.

Since Formism is capable of explaining all issues related to metaphysics, it is therefore integrative in nature.

Mechanism

The root metaphor for this world hypothesis is a machine. This metaphor maintains that phenomena are knowable if perceived as machines. Pepper (1942) identifies six categories of mechanism. They include the following.

- Field of location
- Primary qualities
- Laws holding for configuration of primary qualities in the field(primary laws)
- Secondary qualities
- A principle for connecting the secondary qualities with the effective categories
- Laws for regularities among secondary qualities (secondary laws).

Pepper (1942) terms the first three categories as primary, or effective, categories of mechanism; the last three, secondary or ineffective categories. The two sets of categories seem to be rather loosely connected. A materialist might be defined as a mechanist who ignores the last three categories, and a subjective idealist is a mechanist who denies the first three categories. How can we explain phenomena by using these categories? Suppose we want to understand an organization. The organization is certainly located somewhere,

the event is whatever contributes to its quality. If we rewrite our sentence again, we shall see that its quality is continuously changing. The quality starts changing the moment we write the first word and the meaning continuous changes until the last word is written. Contextualism asserts that all phenomena are continuously changing and never stop doing so. Quality always exhibits some degree of fusion of the details of the texture. The texture i.e. the words of our previous sentence is fused together to give a total meaning. Pepper (1942) identifies three sub categories of texture; strands, context and reference. A texture is made up of strands and it is in a context. The connection of the strands determines the context and to a large degree the context determines the quality of the strands.

Again, consider the following sentence. *The performance of this organization will be improved by reengineering its business process.* Let us divide the sentence into four phrases i.e. "The performance of this organization", " will be improved by reengineering", and "its business process". Now, if we take the phrase "The performance of this organization" as a texture, its strands will be "The", "performance", "of", "this", and "organization", and its context is the other three phrases of the sentence. So, we see that the strands contribute directly to the total meaning of the phrases or textures. The total meaning of the phrase depends on the connection of the strands that indirectly enter the meaning of the phrase and constitute its context.

In practical terms, if we consider an organization as a texture, its strands will be the functional departments and its context will include other organizations in the same industry. Though functional departments are contributing details in the organization, they should also reach into a context and bring some of the quality of the context (other organizations) into the organization in question.

The third sub category of texture is the reference. These are strands more intimately considered. Our sentence above has a point of initiation, a transitive direction, and achieves an ending or satisfaction. The three make up the reference of the sentence.

Evaluation

On appearance and reality, Contextualism suggests that reality is what appears to us. Contextualism also proposes that phenomena with both quality and texture do exist. Contextualism therefore relates the meaning of phenomenon to its existence i.e. phenomenon without meaning does not exist. Since Contextualism perceives reality as it appears, it therefore proposes that substances are particulars and not generals. Contextualism believes in fusion. It therefore suggests that, though there are many realities, they are related and may lead to one reality. Contextualism believes that phenomena change over time and their nature depends on how we perceive them i.e. they are dependent on our minds.

Organicism

The organicist believes that every actual event in the world is a more or less concealed organic process. The organic process is the root metaphor of organicism. Pepper (1942) identifies seven categories of organic process. They include fragments of experience, connections or implications, contradictions or gaps, an organic whole, implicit, transcending and economizing. Let us assume that we intend to develop a quality improvement model for manufacturing organizations. Certainly, if we look around people have developed something similar to what we are about to embark on. For instance, we might come across the work of Crosby (1979), Juran (1988), Lawler *et al* (1985), Scheneiderman (1988), Dale *et al* (1988), Hauser *et al* (1988), Kotter *et al* (1992), Sterman *et al* (1994) and many others. Each of these writers provides us with *fragments* of knowledge regarding quality models.

The fragments are relative to the degree of achievement reached. It is possible that fragments identified by Crosby were also, considered by Juran, and other succeeding writers. They are therefore *connected or tend to be connected* to one another. According to the organicist, facts are not organized from without, instead, they are organized from within. In the process of organizing, the facts, or rather fragments, *contradict* each other.

For instance, the quality models proposed by Crosby and Sterman *et al* may be contradicting each other. The contradiction is only resolved through integration, a higher syntheses, which recognizes the claims of each fragment. So, the resolution is always an integration of contradicting fragments. If we examine the history of quality models from Crosby (1979) through Sterman *et al* (1994), we may note that the progress exhibits some degree of inclusiveness, degree of determinateness and degree of organicity. The fragments of Sterman *et al* might include the ideas of preceding writers. The fragments also are even richer, clearer and more easily understood or rather, they are marked with an increase in determinateness.

The fragments of Sterman *et al* are also more integrated and trend of this integration is towards greater organicity and attains an *organic whole*. An organic whole is a system in which every fragment within it implies every other, and an alteration, or removal of any fragment would alter every other fragment or even destroy the whole system. Organicists suggest that knowledge, progresses in the direction of greater inclusiveness, determinateness and organicity. Fragments are therefore *implicit* or are reflected in the whole in which they are integrated, and the contradictions encountered by the fragments *transcend* and vanish when the organic whole is achieved. In the event of achieving the organic whole, no fragment is left out but is saved, or rather *economized,* and any remaining gaps are filled.

Evaluation

Organicists seem to acknowledge the existence of both appearance and reality. They suggest that the difference between appearance and reality can be resolved through dialectic. Appearance in this case refers to fragments that are not well integrated to form an organic whole i.e. reality *per se*. On the question of ontology organicists propose that phenomena which can be explained by the seven categories of organicism do exist. They would also suggest that though substances are particular, they are normally related to, and influence, each other. The organicist would argue that in the beginning they are many realities, a single reality normally emerges through reorganization. Many realities in this

case connote the fragments of experience and a single reality refers to the organic whole. Organicists believe that phenomena are always changing and that they exist independently of our minds. The role of our minds is to interpret them. Such an interpretation makes us acknowledge phenomena as they appear to us. It is through the dialectic process between different appearances that the gap between appearances and reality is reduced.

5.3.1.3 A textual approach to metaphysics

Watson (1985) reports that in the present epoch we tend to view philosophy as what philosophers have written i.e., text. He argues that the importance of text applies also to other disciplines. For instance, all works of art, nature and social behaviour have become texts for us to interpret. According to Watson, texts are significant when one needs to build one's work on other writers' work or compare it with others in text form. Since most of the work on metaphysics discussed in this thesis is based on text, it is assumed that text is primary in this particular case. Hence, we shall interpret and adopt Watson's views, particularly his classification of reality of text.

Watson identifies four kinds of reality; existential, substractive, noumenal and essential reality. These represent different types of beliefs in metaphysics.

Existential reality

Watson writes that existential reality is the nearest and most evident to us, a reality as we encounter it, and primarily the reality of the perceived world in all its concrete variety and particularity. Existential reality is individual, particular, and always in flux. Being particular implies that every phenomenon is different from every other. When we say that existential reality is in flux we mean that every phenomenon is different at every moment of its life. This implies that existence is limited to the present moment, for we say that the past, no longer exists, and the future does not yet exist. Since reality is particular, it means that essential reality advocates pluralism.

Substractive reality

According to Watson, substractive reality holds that reality as encountered or perceived by us is not the reality, since as encountering or perceiving it involves a contribution from ourselves as well as from the object. Substractive reality asserts that what is really real is the object as it is in itself, apart from its effect on us. Primary qualities, which are really in objects themselves, must be distinguished from secondary qualities, which are nothing but have the power to produce effects in us. Substractive reality does not denounce the role of secondary qualities but argues that they are not real, but manifestations of reality.

Watson writes that substractive reality, assumes infinite individuations of a common substratum. According to this kind of reality, existence is physical or rather, material. The implications of substractive reality on understanding organizations for instance, is that secondary factors such as organizational culture, management commitment and leadership are not important and thus should not be considered. On the other hand, primary factors such as the number of employees, productivity and financial performance are all that matters.

Substractive reality is similar to existential reality because they both advocate pluralism. They also hold that substances are unique and individual. According to Substractive reality, phenomena do not change and that their existence is independent of our minds.

Noumenal reality

Watson holds that in terms of noumenal reality this world is not all that there is but derives its significance from its relations to a higher order of things. Believers in noumenal reality assert that what is really real, is perfect and imperishable and is only perceived by the mind or reason. According to this kind of reality, existence is determined by mind. Unlike existential and substtractive reality, which argue that reality is particular, noumenal reality

perceives phenomena as generals. It also asserts that phenomena change over time, and exist independent of our minds.

Essential reality

According to Watson, essential reality holds that things are real as what they are and that what we see is their appearances. Appearances are perceived as essences. Essences are like existential realities insofar as they are real in particular individuals, but differ from them because as essences they are general rather than particular. The definition or formulation of an essence is general in the sense that it can apply to many particulars, even if, in fact, it applies to only one. According to essential reality, different organizations are all organizations, and an organization remains an organization irrespective of any changes that occur during its life. According to this kind of reality, existential uniqueness is treated as an instance of the general schema. Unlike existential reality, essential reality assumes that there is similarity between things. Existence is explained in terms of essences. Though essential reality acknowledges the fact that they are many realities, their number can be reduced through classification. Essential reality holds that phenomena do not change over time and are dependent on our minds.

5.3.1.4 Comparison between metaphorical and textual theories of reality

Metaphorical and textual kinds of realities can be compared using change – static and subjective – objective classification as shown figure 5.1.

What theory of reality should be adopted will largely depend on the quadrant one is in – please see figure 5.1. However, in this thesis the act of inquiry requires moving continuously around the four quadrants. It is therefore likely that most of the theories of reality can be adopted, but at different times.

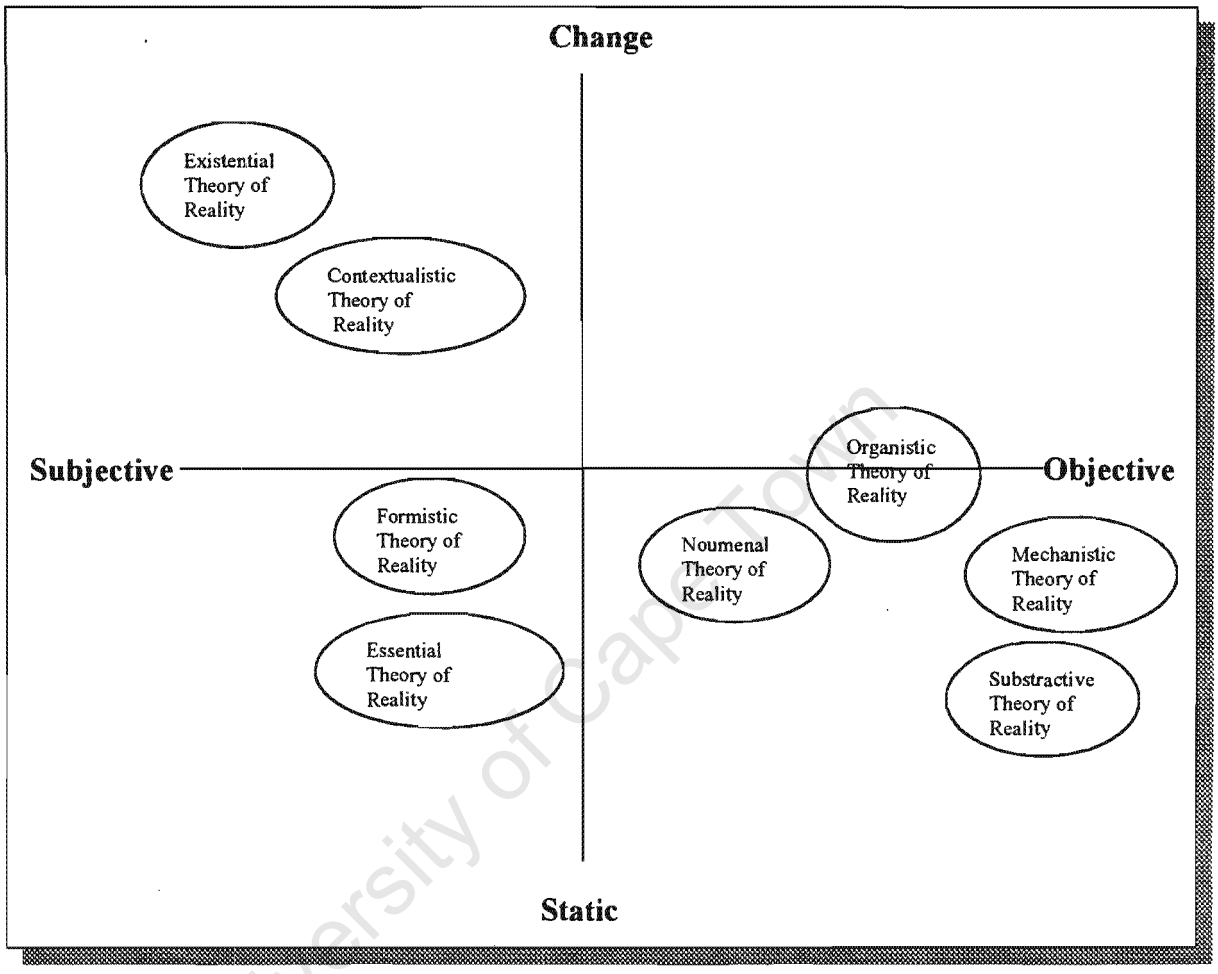

Figure 5.1. A classification of theories of reality

5.3.2 Epistemology

The first question addressed by epistemology is related to whether this world is knowable or not and, this translates into the cognitive attitude of a knower. A cognitive attitude of a knower can act as a stumbling block or a lubricant to the creation of knowledge. Pepper (1942) identifies four such attitudes namely dogmatism, utter skepticism, partial skepticism and convictionism. The second epistemological question is related to the confidence of our

cognition i.e. how do we know that we know? This leads us to the issue of corroboration. What kind of corroboration should be undertaken so that we can be sure that what we claim to know, we actually know? Pepper (1942) proposes two types of corroboration; corroboration of man with man and corroboration of fact with fact. The third question addressed by epistemology is the issue of the knowledge creation process. What methodologies are available to us that can be adopted in fixing our beliefs? Which one is more effective? We look at these epistemological questions in more detail below.

5.3.2.1 How do we know?

According to Peirce (Hausman, 1993; Hookway, 1985), there are four different approaches that may be used in settling doubt. They are: the method of tenacity, the method of authority, the method of a priori, and the method of science.

The method of tenacity

This method is used when stubborn resistance to doubt is invoked and belief is based on prejudice that remains unquestioned and not criticized. People believe things simply because it is painful not to. We all believe that after finishing our studies for instance, we shall be able to find a job. We do not believe that the converse might be true since it hurts. According to Peirce, this method is inadequate because the critical social impulse or rather the social nature of man is against it. The man who adopts it will eventually find that other men think differently from him, and that their opinions are quite as good as his, and this will shake his confidence in his belief.

The method of authority

This occurs when institutions or individuals impose belief based on their own opinions on to other people in the society. Those people who question or disagree with the opinion are coerced, threatened and punished. According to Hausman (1993), a general massacre of

all those who have not thought in a certain way has proved to be effective in settling opinion in a country. The social impulse is also the basis of Peirce's rejection of this method. He writes that

> "But, no institution can undertake to regulate opinions upon every subject. Sooner or later some individuals will be found who are raised above that condition. These men possess a wider sort of social feeling. They see the variations in doctrines in different countries and times, and they cannot help seeing that it is mere accident of their been taught as they have and their having been surrounded with the manners and associations they have, that has caused them to believe as they do and not far differently." (Hausman, 1993, page 30).

A good example is the imposition of the socialist ideology on some countries in the world. There were leaders who forced their citizens to believe and practice socialism as the best ideology to emancipate mankind. It was during the eighties that people started realizing that socialism as practiced is not good at all. As a result many leaders in socialist countries were brought down, very few remaining in power.

The method of a priori

The method of a priori, which is an example of the development of the metaphysical philosophy, entails adopting propositions on the ground that they are agreeable to reason. According to Peirce (Hausman, 1993), this type of system has not rested in observed facts. This method is fundamentally dependent on what human beings think at a given time and place. However, what some people might accept as reasonable, other people may not. Normally, people will resist beliefs that are dependent on the particular conditions of an individual, or a particular group claiming to be following the "right path". According to Peirce (Hausman, 1993), the method of a priori breaks down in practice.

The method of science

Since the three aforementioned methods fail because they are dependent on what humans think, Peirce maintains that a method is needed by which our beliefs may be determined by nothing human, but by some external permanency on which our thinking has no effect. This way of reasoning is called the method of science. In the context of the form, the method of science is divided into three phases namely, abduction, deduction and induction. Ryan (1996) identifies three phases of abduction:

- Immersion. (A scientist immerses himself, or herself in a problem situation and gets a feeling of it).
- Generating a range of feasible hypotheses that explain the phenomena
- Selecting the hypothesis that best explains the observations.

Ryan's description of abduction is based on Peirce's work. Peirce views abduction as comprising two phases; experiencing, and hypothesis formulation. Deduction is the process of predicting the practical consequences if the hypotheses should be true in a particular situation. Induction is the process of testing the hypotheses in that situation, and on the basis of the results, one may accept, modify or even reject it. In the context of the nature of corroboration used, the method of science adopts a multiplicative corroboration i.e. corroboration based on observation.

The strength of the method of science is attributed to its emphasis on the need to carry out all the aforementioned phases in the process of inquiry. Other methods for instance, under the banner of systems thinking (to be discussed shortly), seem to be weak in this aspect because they emphasize only either one or two of these phases.

Evaluation

The main weaknesses of the method of science seem to be related to the kind of reality theories on which it is based. The method is based on theories of reality that can be located in the objective – static paradigm (please, see figure 5.1). Hence, the method of science

has a tendency to overlook the subjective requirement of the knowledge creation process, a requirement that emphasizes the need for consideration of wide community participation. This weakness has also been acknowledged by other writers, such as Churchman, who writes that

> "Over and above this, the scientific community, itself and alone, stands as a judge of the quality of man's work, especially in the pure sciences....As a consequence, the scientific community has long fought off any attempts by the rest of the society to enter its arena and judge its inhabitants according to external social and moral criteria. If a religious community, for example, believes that a certain kind of scientific investigation is dangerous from a religious point of view, this belief is taken to be irrelevant by the scientific community. And, if the politician tries to interpret the results of scientific inquiry to his own political advantage, the scientific community regards the interpretation as biased and at best useless, at worst dangerous." (Churchman, 1971, page 219).

Churchman further notes that

> "In other words, the esoteric scientist says, "This is true, or as near to true as our esoteric methods permit." The rest of the society says, "It may be true in your esoteric sense, but since any exoteric application of it is either useless or harmless, it is false in our sense." (Churchman, 1971, page 225).

The problem of the method of science identified by Churchman exists because the scientific community and the rest of the society reside in different kinds of reality. The rest of the society would like the method of science to take into account also the theories of reality located in the other three quadrants of figure 5.1.

Checkland (1981) also acknowledges the weakness of the method of science. He writes that the method of science was very much used in the machine age, in actual fact, it led to the industrial revolution and is the basis of today's civilization. What was the secret of its success? It succeeded because it was confined, as Checkland argues, to simple natural and designed systems. Dealing with such systems requires the method of science to be based in the objective – static quadrant.

Ackoff (1981) believes that the weakness of the method of science hinges on its emphasis on cause and effect. This inadequacy of the method of science is elaborated by Ackoff

> "The Machine Age's commitment to cause and effect was the source of many dilemmas, including the one involving free will. At the turn of the century the American philosopher E. A. Singer, Jr., showed that science had in effect, been cheating. It was using two different relationships but calling both cause and effect. He pointed out, for example, that acorns do not cause oaks because they are not sufficient, even though they are necessary for oaks. An acorn thrown into the ocean, or planted in the desert ...does not yield an oak. To call the relationship between the acorn and an oak "probabilistic" as many scientists did was cheating because it is not possible to have a probability other than 1.0 associated with a cause; a cause completely determines its effect." (Ackoff, 1981, page 20)

The interaction and feedback advocated by the method of science is therefore limited to cause and effect. If the method of science were also based on theories of reality located for instance in objective – change quadrant, this kind of problem would disappear.

The systems approach

The failure of the scientific method to explain some phenomena in complex natural and design systems and even to solve problems in human activity systems, paved the way for the emergence of the systems approach just after the Second World War. A system is a set of two or more elements that satisfies the following conditions, (Ackoff, 1981); (Checkland, 1981); (Flood *et al*, 1993).

- The behaviour of each element has an effect on the behaviour of the whole. Consider for instance, an automobile. The fuel, the ignition, and the transmission systems individually all have effects on the automobile in accomplishing its purpose. For an organisation, production, engineering, marketing, personnel department etc., each affect the performance of the whole organization. This condition conflicts with the scientific concept of reductionism, which argues that because of their complexity, systems should be reduced through analysis. Because the system approach realizes that each element has an effect on the whole then, one cannot exclude some of the elements by analysis.

- The behaviour of the elements and their effects on the whole are interdependent. This means that no element has an independent effect on the whole system. The way the lungs behave and affect the body depends on the behaviour of the heart etc. In the context of the organization, the way the marketing department behaves and the manner in which it affects the organizations, will depend on the behaviour of other departments, such as production, finance, etc. Again, this condition conflicts with the scientific concept of determinism, which asserts that a single element is sufficient and necessary to cause an effect on the whole.
- However subgroups of the elements are formed, each has an effect on the behaviour of the whole and none has an independent effect on it. This means that the elements are so interconnected that independent sub-grouping is not feasible.

The above three conditions lead to the concept of synthesis as opposed to analysis advocated by the method of science. According to Ackoff (1981), synthesis has three steps:

- Identify a containing whole system of which the issue to be explained is a part.
- Explain the behaviour of the containing system
- Then explain the behaviour of the issue to be studied in terms of its roles or functions within its containing whole.

If the performance of one department is the issue of interest, a containing whole is identified, which in this case is the organization. The behaviour of the organization in terms of performance is then explained, that is; the performance of the whole organization is established. The last step is to study the performance of the department under consideration in view of the impact of other departments' behaviour. Essentially, this approach will need the consideration of the performance of other departments within the organization and their influence on the performance of the department under consideration.

Evaluation

Many methods claim to be systemic. This is because writers hold different views on what should be the features of a systemic method. For instance, according to Espejo (1994), a systemic method is one, which will help

- Understand how the parts relate to each other and constitute larger wholes.
- Understand interactive processes constituting wholes at multiple levels.
- Understand how the system works.
- Understand the likely effects in the whole of local behaviours and vice versa.
- Understand language and emotions.
- Ground purpose through shared distinctions and transform these distinctions into interactive patterns enhancing people's actions, making their action more effective.

According to Espejo, a systemic method must be based on theories of reality located in objective – change and subjective – static quadrants.

Flood *et al* (1993) noted that most methods, which claim to be systemic, address only certain kinds of problem contexts. Inspired by the work of Habermas (1972) on the theory of knowledge constitutive interests, the authors proposed Total System Intervention (TSI) as an alternative way for dealing with the complexity of management problems.

Regarding the theory of knowledge constitutive interests Flood (1994), writes that human beings, seeking knowledge of complex phenomena, are driven by three fundamental interrelated interests. These include interest in managing interacting processes using methods of prediction and control, interest in the interrelations between human interpretations of actions and activities, and interest in power associated with rule governed systems that affect people's actions and interpretations i.e. technical, practical and emancipatory interest respectively. Flood (1994) holds that the interests are interrelated because the existence of power and coercion may prevent free and fair interpretations of phenomena, which in turn might threaten the effective management of interacting processes using the methods of prediction and control. This implies that a systemic method

helps organizations address all three kinds of interests. According to Flood *et al* (1993), the systems approach (in this case the TSI) is based on theories of reality located in objective – change, subjective – change, and subjective – static quadrants.

However, as Midgley (1996) pointed out, the TSI has not fully achieved this objective. This is because the notion of liberating knowledge (located in the subjective – change quadrant) that is underscored by the emancipative interest is not translated into the TSI methodology.

Since inquiry is supposed to be based (at different times) on theories of reality located in all four quadrants of figure 5.1, it appears best to merge the method of science and the systems approach into a single coherent and consistent framework. The method of science in this case provides the scope of the framework while the specifics of such a framework are to be according to the systems approach. In such a setting, the method of science will ensure that the inquiry is based on a theory of reality located in the objective – static quadrant and the systems approach will ensure that the inquiry is also based on other theories of reality located in the reaming quadrants. This approach has been adopted in this thesis.

5.3.2.2 Is the world knowable?

The answer to the question whether the world is knowable depends on the cognitive attitude of the inquirer. Pepper (1942) identifies three components, or types of cognitive attitudes, of inquirers; dogmatism, partial skepticism and convictionalism.

Dogmatism

In order to explain this type of cognitive attitude fully, Pepper (1942) proposes three elements of belief; *the content, the attitude and the grounds* for belief. The content of belief defines what is believed. The attitude of belief shows the degree or the intensity of

belief. The intensity varies from belief with utter certainty to disbelief with total certainty. The two are separated by the attitude of unbelief. The grounds for belief indicate the justification for the belief. The cognitive attitude of a dogmatist is not in proportion to the grounds of belief. For instance, the inquirer may believe, unbelieve or disbelieve too much or too little in view of the available evidence. We can therefore define dogmatism as a belief, unbelief or disbelief in excess of the available evidence. A good inquirer is one whose attitude with respect to content is determined by the available evidence. A dogmatist is not a good inquirer because, having believed, unbelieved, or disbelieved he/she refuses to change the attitude even if new evidence is revealed. Cognitive attitudes though, are normally guided by some criteria. The attitude of a dogmatist is guided by three criteria namely, these of *infallible authority, certainty,* and that *of the inquiry approach* (Pepper, 1942).

The knowledge of primitive societies is based on the criterion of infallible authority or on practical skills; cultural tradition passed from one generation to another. For instance, some societies still believe in rain dances as means for influencing the weather. According to Pepper (1942), the criterion of certainty is based on the dogma of self evident principles and the dogma of indubitable fact. The dogma of self evident principles asserts that some principles are certain because they are self evident, but there seems to be no principle that can be proved to be certain by itself. Validation requires corroboration of both, fact with fact and man with man. Now, if self evidence must find evidence for itself elsewhere, it is no longer self evidence. For instance, the Law of Contradiction is not self evident because it needs its contradiction to find evidence of itself. Moreover, the Law itself is misleading because it finds evidence of itself through the falsity of another Law. For example, according to the Law of Contradiction we should believe the principle that all human beings are good because it is inconceivable to think that all human beings are evil. The dogma of indubitable fact asserts that some pure facts emerge in the form of intuition of content, sense data or the offerings of common sense (Pepper, 1942). Such facts should be credited on sight without any need for corroboration with other facts. Many writers of the

present day are being trapped by this dogma. For instance, consider the following description of organizational change as given by Nadler and Tushman (1990).

> "Some changes in organizations, while significant, only affect selected components of the organisation. The fundamental aim of such change is to enhance the effectiveness of the organisation, but within the general framework of the strategy, mode of organizing, and values that already are in place. Such changes are called incremental changes...Other changes have an impact on the whole system of the organisation and fundamentally redefine what the organisation is or change its basic framework, including strategy, structure, people, processes, and in some cases core values. These changes are called strategic organisational changes."
> (Nadler *et al*, 1990, page 79).

According to Nadler *et al* there are organizational changes which involve the change in organizational culture and changes which do not. With this in mind, let us look at the description given by Blumenthal and Haspeslagh (1994).

> "While the goal of all transformations is to improve performance, many efforts to improve performance are not transformational. We propose that to qualify as a corporate transformation, a majority of individuals in an organisation must change their behaviour." (Blumenthal *et al*, 1994, page 101).

If behaviour is influenced by culture then, according to Blumenthal *et al* (1994), any organizational change must involve a change in organizational culture. This implies that incremental changes are actually not organizational changes.

It is quite common for knowledge that is based on common sense to contradict each other. This inconsistency applies to any type of fact that is based on the criteria of dogmatism. Pepper (1942) argues that facts based on the criteria of dogmatism, normally conflict with each other. Also, the competency of such facts is often seriously questioned in terms of other criteria and in such an event an appeal is customarily made to other criteria, which often attain what can scarcely be denied to be cognitive success. As a consequence, dogmatism as an attitude does not help the inquirer to acquire any cognitive knowledge.

Pepper (1942) asserts that men may be dogmatists without employing either the criterion of infallible authority or the criterion of certainty, for dogmatism is any belief in excess of the available evidence. All inquirers who are dogmatists are likely to employ the methods of tenacity, authority, and a priori.

Partial skepticism

A partial skeptic is one whose attitude is in proportion to the grounds of belief i.e. one who believes, unbelieves or disbelieves according to the available evidence. Moreover a partial skeptic is eager to find more grounds for belief if more are available, and to modify his attitude constantly in relation to these. As a result, partial skepticism as an attitude continuously adds cognitive knowledge to the inquirer. Depending on criteria used to fix belief, a partial skeptic can be a convictionalist. Pepper (1942) describes a man of conviction as one whose attitude of belief in *the act* is usually stronger than the justifiable attitude of belief in *the judgment* on which the act is founded. The criteria that determine the proper attitude in this case are ethical or practical, whereas those that determine the proper attitude for action for cognitive judgment are cognitive. For instance, because of pressure of time it is usually necessary to act before all desirable evidence is available. So, a man of conviction is one whose attitude is justifiable on practical grounds, though it might appear irrational on cognitive grounds.

5.3.2.3 How do we know that we know?

Corroboration is a very important constituent of epistemology if the created knowledge is to be adequate. Pepper (1942) identifies two types of corroboration namely, multiplicative corroboration and structural corroboration. These two kinds of corroboration, and others, are discussed in detail in the later sections of this chapter, but at this stage it is worth noting that the main standing criticism of the role of corroboration is related to its location in the knowledge creation process.

Corroboration is normally done after the knowledge creation process (Barlas, 1989; Barlas and Carpenter, 1990; Checkland, 1995; Forrester, 1968; Sterman, Repenning and Kofman, 1994; Ulrich, 1987), or during the knowledge creation process (Landry and Oral, 1983). We argue that the adequacy of knowledge created must be built into the process and not inspected out of it. There is a need for corroboration to be considered up front and thus guide the knowledge creation process. This approach is adopted in this thesis.

5.3.3 Axiology

Ferre (1995) states that axiology is a branch of philosophy which addresses issues related to values. It addresses questions such as what it is to be valuable or of value. According to Ferre, there are two major types of values; ethics and aesthetics.

5.3.3.1 Ethics

Lillie (1971) defines ethics as the normative science of voluntary actions of human beings living in societies, a science that judges these actions to be right or wrong, to be good or bad. This definition is similar to that given by Singer (1994) who writes that ethics is about how we ought to live. It is about what makes an action the right rather than the wrong, thing to do. What actions ought to be right, wrong, good or bad depends on the kind of the ethical theory one adopts. Lillie (1971) identifies ten types of ethic theories.

According to Lillie, these can either be *absolute* or *relative*. While absolute ethics holds that there is one universal and external moral code which applies equally to all men of all ages, to which changing circumstances or changing opinions make no difference, relativistic ethics holds that the moral standards vary with different circumstances. Ackoff (1994) terms absolute and relativistic ethics, mechanistic and organismic ethics respectively. Ethics can also be *subjective* or *objective*. Subjective ethics is part of relative ethics which holds that circumstances which cause variability in moral judgment are

related to one's consciousness. Of course there are relative ethics which are not subjective, and all absolute moral standards are essentially objective.

Lillie also distinguishes between *naturalistic* and *non naturalistic* ethics. Naturalism analyses ethical concepts in terms of psychology. Naturalistic ethics can either be subjective if the moral judgment varies with the attitude of a person, or objective if it does not. Ethical theories may also be divided into *attitude* theories in which moral judgment varies with the attitude of some being, and *consequence* theories in which moral judgment depends on the consequences of actions. Finally, Lillie identifies *teleological* and *deontological* ethics. A deontological ethical theory holds that the rightness and wrongness of an action depends on the action itself and not on the consequences it produces. Under this theory it can be argued that an action is right because it conforms to a law of God, of intuition, or of reason. Deontological ethics are akin to what Ackoff (1994) calls *social systemic* ethics. Ackoff states that this type of ethics evaluates decisions by the way they are made and by whom, not by their content or consequences. Of course teleological theories are identical to consequence theories discussed above. They hold that the rightness or wrongness of an action depends on its consequences.

Evaluation

The kind of ethic theory one adopts is very much influenced by the type of theory of reality one believes in. The ten theories of ethics can therefore be matched with their corresponding theories of reality. For instance, absolute ethics, objective ethics and naturalistic ethics tend to be closely related to the theories of reality located in objective – static quadrant (please refer to figure 5.1 on page 143). The relative, subjective, non-naturalistic, and attitude, ethics are located in the subjective – change quadrant. On the other hand, consequent, deontological, and teleological ethics can be found in the objective – change quadrant.

The argument advanced here is that there are no good or bad ethics. The appropriateness of a given theory of ethics will depend on the theory of reality held by an individual.

However, since inquiry requires one to visit all the quadrants shown in figure 5.1, it is likely that the majority of theories of ethics might be adopted at different times in the process.

5.3.3.2 Aesthetics

According to Ackoff (1994), aesthetic activities and products provide the re-creative rewards, fun and entertainment, derived from pursuing ideals and relaxing from their pursuit. Ackoff concludes that aesthetic values have to do with the quality of our lives. If we agree with this fact, then employees in organizations can achieve their aesthetic values by participating in making decisions that affect them.

Having discussed the key issues in philosophy, let us now examine why should inquiry be treated as a philosophical exploration.

5.4 Inquiry as a philosophical exploration

If inquiry is pursued as a philosophical exploration, it requires moving continuously clockwise and counterclockwise around the key issues in philosophy as shown in figure 5.2. Note that the arrows should read "sets the parameters for".

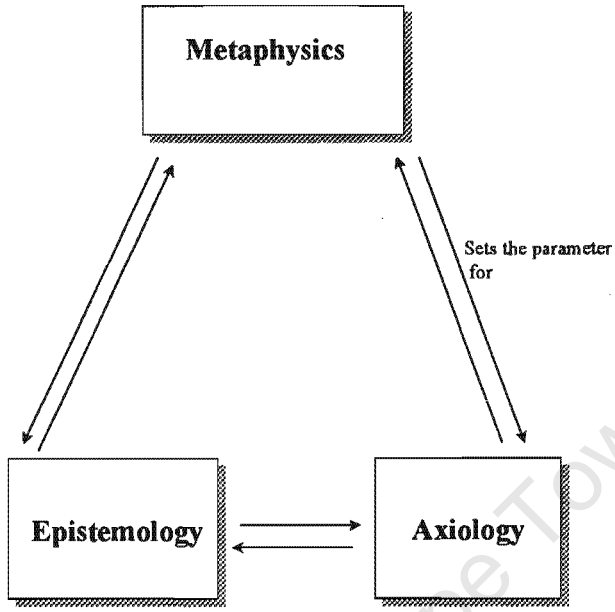

Figure 5.2. Inquiry as a philosophical exploration

It is through these movements that knowledge is created. For instance, moving clockwise, what we think is ethical to us will set the parameter for what we think is real. The kind of reality we believe in will set the parameter for the way we create and validate knowledge. The manner in which knowledge is created and validated, will in turn set the parameter for the kind of ethics to be adopted.

The new ethics will then set the new parameter for the kind of reality we should believe in or even change the way we perceive the world. Moving counterclockwise, the manner in which knowledge is created and validated will set the parameter for our ethics and the latter will set the parameter for what we think is real. What we think is real will set the parameter for the way knowledge is created and validated. The process is continuous i.e., moving around the nodes clockwise - anti clockwise - clockwise - anti clockwise - and so on.

Treating the process of inquiry as a philosophical quest requires moving from one key issue to the next while paying attention to all incoming arrows. If this is done the following questions emerge:

5.4.1 Metaphysics node

At this node incoming arrows from axiology and the epistemology node yield the following questions:

1) Are metaphysical assumptions of the inquiry process ethical? (This question underscores the moral aspects of the adequacy of the metaphysical assumptions, and is formulated while looking at the incoming arrow from the axiology node).
2) Are metaphysical assumptions of the inquiry process valid? (This question looks into the adequacy of the metaphysical assumptions from the point of view of cognition and is formulated by looking at the incoming arrow from the epistemology node).
3) Do our metaphysical assumptions correspond to our inquiry process? (Again, this question is formulated by looking at an incoming arrow from the epistemology node).

Note that there are two interrelated sub-issues under the epistemology node i.e., how do we know that we know and how do we know? The former underscores the validity of the inquiry process and the latter looks at the kind of inquiry process to be adopted.

5.4.2 Axiology node

By a similar approach the following questions are formulated in this node.

4) Is what we perceive to be ethical reflected in our metaphysical assumptions? (Note that it was mentioned earlier that different theories of ethics correspond to different theories of reality. This question therefore ensures that there is conformity between our ethics and our metaphysical assumptions. The question is formulated by focusing on the incoming arrow from the metaphysics node).

5) Do our ethics conform to the adopted process of inquiry? (Earlier it was pointed out that the kind of inquiry process adopted must correspond to the metaphysical assumptions. It was also mentioned that the latter must also correspond to our ethics. This implies that our ethics must be in harmony with the kind of inquiry approach adopted).

5.4.3 Epistemology node

Incoming arrows at this node yield the following questions.

6) Does the adopted inquiry process correspond to our ethics? (This question is formulated by looking at the incoming arrow from the axiology node. The question is similar to question number 5 above, only question 5 looks at our ethics through the lens of our inquiry process, while this question examines our inquiry process through the lens of our ethics. Such a double examination is recommended so that a better understanding of how these two issues are related can be realized).
7) Does the inquiry approach conform to our metaphysical assumptions? (This question addresses the conformity of the inquiry process to our metaphysical assumptions).

5.4.4 Implications of treating inquiry as a philosophical pursuit

Question 2 underscores the cognitive adequacy of our metaphysical assumptions. Question 7 brings to the fore the need for the inquiry process to conform to the metaphysical assumptions. Questions 5 and 6 address issues related to the ethical adequacy of inquiry process. Question 1 considers the ethical adequacy of our metaphysical assumptions. Question 4 ensures that our ethics conform to our metaphysical assumptions.

The above issues interact and lead to knowledge creation that is based on an adequate philosophy as shown in figure 5.3. The arrows should read " leads to ...".

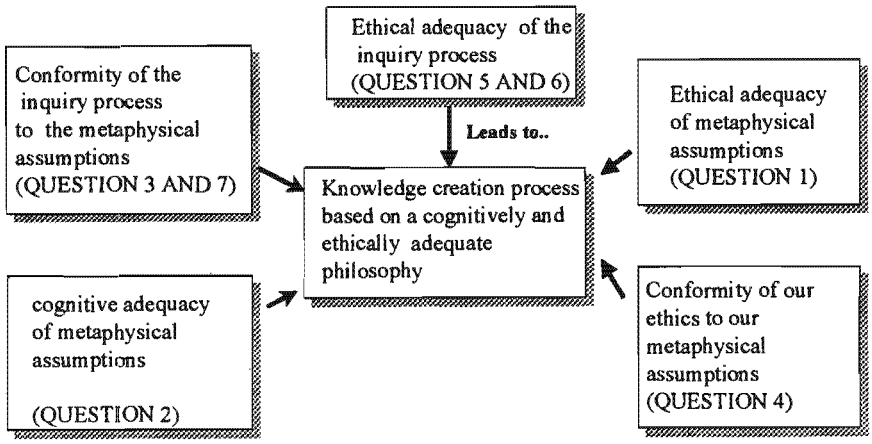

Figure 5.3. The components of knowledge created based on an adequate philosophy

Hence, according to figure 5.3, treating inquiry as a philosophical exploration enables the knowledge creation process to be based on an adequate philosophy; a philosophy that is both cognitively and ethically adequate. A detailed discussion on what it means by cognitive and ethical adequacy of a philosophy, and the implication on the development of a theory for management intervention will be undertaken in the next chapter.

So far we have established that treating inquiry as a philosophical exploration, enables the knowledge creation process to be based on an adequate philosophy. However, we have not explored the consequences of basing the knowledge creation process on a philosophy that is cognitively and ethically adequate. The consequences of basing inquiry, or rather knowledge creation process, on an adequate philosophy are crucial, especially in the design of inquiry processes and intervention methodologies in particular. The next section is therefore devoted to uncovering the implications of basing the inquiry process on an adequate philosophy.

5.4.4.1 The consequences of basing inquiry on an adequate philosophy

It is advisable to approach the task of identifying the consequences of basing inquiry on an adequate philosophy from related studies in the validation of created knowledge. From this literature a list of criteria which are characteristic features of a valid created knowledge can be identified. Once the criteria are identified, their relationships can be established. If it is found that first, the adequacy of philosophy criterion turns out to be one of the criteria identified in the validation of created knowledge literature. Second, the relationship between the adequacy of philosophy criterion and the remaining criteria in the list is such that, the former influences the latter, then it can be concluded that the remaining criteria in the list are the consequences of basing inquiry on an adequate philosophy.

Related studies in validation of created knowledge

There appears to be an agreement between scholars on what is not a theory. It has been argued that a theory should not only address issues related to the "what" and "how", but also must capture issues concerning the "why" of what is being theorised. It has been argued that references, data, lists of variables, constructs, diagrams, hypotheses and metaphors are not theories because they do not address issues related to "why" (Bacharach, 1989); (Sutton and Staw, 1995); (Weick, 1995). Since a theory has been defined as "an ordered set of assertions about a generic behaviour or structure assumed to hold throughout a significantly broad range of specific instances" (Weick, 1989), it is therefore required to explain why an ordered set of assertions is true in a particular context.

Linstone and Murray (1975) noted that for any scientific technique, theory, or hypothesis, there is always some philosophical basis upon which that technique, theory, or hypothesis fundamentally rests or depends. The philosophical basis Linstone *et al* (1975) are referring to, are the taken for granted metaphysical assumptions – assumptions about what is believed to be real by the technique, model, theory or hypothesis in question. Since theories address the "why" of assertions, their metaphysical assumptions are easily

established or known than those of techniques or hypotheses which address the "what" and the "how" of assertions. In other words, hypotheses, methodologies, models and techniques can be perceived as assertions whose metaphysical assumptions though present, but are not made explicit. The difference between theories and other assertions such as hypotheses, methodologies, models, or techniques, disappears in the evaluation of their adequacy because in either case the question of "why" crops up. Hence, though theories differ with other assertions in the way they describe and explain assertions, they are however, not different when it comes to assessing their adequacy.

Hence, in the context of validation, there is no difference between a theory, a model, or a methodology. That is why in this thesis, all such assertions are referred to as "created knowledge".

The criteria for evaluation of created knowledge, which in this paper, are referred to as "the criteria for adequacy", provide the answer to the "why" question. This implies that assertions qualify as knowledge because they are supported by these criteria. It also implies that knowledge is perceived as adequate because of the nature of the criteria supporting them. In this section, the search for criteria for adequacy will therefore involve models, methodologies, and theories.

Although most writers agree on the need for corroboration as a means for validating the created knowledge, their views on the kind of corroboration to be used, differ. For instance, Landry and Oral (1983) argue that the kind of corroboration will depend on the nature of knowledge created. Barlas and Carpenter (1989) also support this view. They write that

> "In the natural and social sciences the question of how models should be validated has been a controversial issue for many years. Especially in the social sciences, this controversy has become more crucial as new and complex modeling tools have emerged in recent years." (Barlas *et al,* 1989, page 148).

According to Barlas *et al*, this controversy is justifiable because model validity is strongly tied to the nature and context of the problem, the purpose of the model, the background of the user, the background of the analyst and other considerations. Because of the existence of these variables, the type of validation to be adopted is therefore expected to vary.

Pepper (1942) has a different view. He identifies two types of corroboration as, multiplicative corroboration and structural corroboration. He writes that multiplicative corroboration is corroboration of man with man and is based on pure observation or data. Suppose one wanted to know whether a Total Quality Management (TQM) programme could improve the financial performance of firm or not. One would implement the TQM programme in the firm and possibly request several other firms, to do the same. If the financial performance in all the firms is improved, it can then be concluded that TQM improves the financial performance of firms. Alternatively, one can find out by collecting data on those firms that implemented the TQM programmes. One can then ask them whether their financial performance improved, and be able to validate the proposition that TQM programmes improve financial performance. The belief here is based on a cumulative corroboration of evidence. The corroboration consists of a repetition of the same fact, because either one agrees to oneself and with others or one observes others agreeing that a TQM programme improves financial performance. The persuasive force of corroboration is social since it derives from the number of observations that agree with each other.

Pepper (1942) identifies two types of multiplicative corroboration; empirical, and logical data corroboration. Lockean inquiry systems are also based on empirical science or rather, pure observations (Churchman, 1971); (Linstone *et al* 1975). According to Locke, truth is experiential in that its validity is through widespread agreement between different human observers. Lockean inquiry systems are opposed to the prior presumption of hypothesis or theory, since in their view this exactly reverses the justifiable order of things. Data are that which precede and justify theory, and not the other way around. Lockean inquiry systems are the foundation for experiential, consensual systems.

The main standing criticism of this kind of corroboration is the fact that data are not pure observations, but are loaded with interpretations (Pepper, 1942). A datum is supposed to be something given and entirely free from interpretations. If we refer again to our earlier example, some inquirers might doubt the proposition that TQM programmes really improved financial performance because of the possibility that the observations were wrongly interpreted to fit what was observed. Another problem with observation is that it cannot reveal facts that are not observable. For instance, time is real and yet cannot be observed.

On the other hand, structural corroboration is corroboration of fact with fact. Let us consider again our previous problem i.e., whether TQM programmes improve the financial performance of the firms or not. Instead of adopting multiplicative corroboration, one might decide to look critically on the mechanics of a TQM programme and establish what it is, how is it implemented and eventually establish the link between the programme and the financial performance of the firm. Here the corroboration comes from the agreement of different facts in the determination of the nature of one central fact. The persuasive force comes from the massiveness of convergent evidence upon the same point of fact (Pepper, 1942). It is a structural force of the evidence itself and is not social. Pepper (1942) maintains that structural corroboration cannot get along at all except by the aid of hypotheses, which connect together the evidence that is corroborative.

Even with our TQM programme example, the evidence cannot be certain without the hypothetical connections indicating the influence of a TQM programme on financial performance. Leibnizian inquiry systems are also based on corroboration of fact with fact. They maintain that truth is analytic, the truth content of a system being associated entirely with its formal content (Linstone *et al*, 1975). Such systems argue that the truth does not rest upon any external considerations i.e., upon the raw data of the external world. Instead, the criteria for adequacy of Leibnizian inquiry systems include internal consistence, completeness, and coherence.

Unlike Barlas (1989) who holds that the kind of validation is context dependent, Pepper (1942) claims that both multiplicative and structural corroboration should be applied in validating any created knowledge. He writes that

> "Of necessity, a world theory draws data within its scope as well as everything else. It, therefore, does not reject, but acquires the cognitive force of multiplicative corroboration as well as that of structural corroboration. In other words, the refinement of structural corroboration eventually draws in multiplicative corroboration. ..Cognition needs both types of refinement as much as a bird needs two wings." (Pepper, 1942, page 78 - 79).

The existence of different views on the kind of corroboration to be adopted is caused by writers being influenced by different reality and ethics theories (please refer to figure 5.1). While writers advancing structural corroboration are influenced by reality, and ethics theories located in the subjective quadrants, writers advocating multtiplicative corroboration are influenced by theories of reality, and ethics located in the objective quadrants.

Other writers have also proposed different approaches for corroboration, or rather, validation of the created knowledge, particularly if such knowledge is a model, or methodology and not a world theory. Their approaches recognize the existence of a link between a world theory and a model, or methodology that is based on such a theory.

For instance, Checkland (1995) acknowledges the existence of such a link. He identifies two issues in model validation namely, the relevance and the technical issue. Checkland (1995), making a reference to his Soft Systems Methodology writes that

> "There are two aspects to this question (of validation): the question of whether a model is actually 'relevant' or not, and the technical question of whether a given model is competently built. With regard to the question of relevance, the answer to the question of whether or not a given model of a human activity system is relevant or not in a particular study has to be answered by the learning process itself. .In trying to answer the technical question of whether or not a model of the kind under discussion is adequate, Soft Systems Methodology used to make use of perfectly

> general model of any system of purposeful activity in a real world context - a model known as the formal system model. This drew on Churchman's anatomy of systems teleology and Jerkins summary of systems teleology." (Checkland, 1995, page 53).

According to Checkland (1995), one must ensure that the created knowledge is relevant, and its relevance depends on the views of the users of such knowledge. It seems the issue of relevance of the created knowledge, depends on; the utility of the knowledge itself (Is the created knowledge capable of solving the problems that it was intended?), and the ability of such knowledge to help users learn. The technical question of whether the model is competently built refers to the degree to which the created knowledge conforms to its underlying philosophy or theory. Checkland (1995) states that in natural and management sciences, models must be shown to adequately represent a part of the real world. On the other hand, he argues that this is not the case in softer approaches where models have only to be internally defensible against a set of principles defining a particular kind of intellectual construct - a particular kind of epistemological device. This questions Checkland's arguments, because conformity of models to a set of principles that define a particular kind of intellectual construct does not necessarily make these models adequate unless the principles themselves are adequate with respect to the nature of problems the models are meant for.

Other writers proposing different validation approaches include Landry *et al* (1983) who hold that the type of validation depends on the nature of created knowledge. Landry *et al* identifies three types of created knowledge; the conceptual model, the formal model and the solution. According to Landry *et al*, the conceptual model is the coherent mental image of the problematic situation and is formed by the perceptions and value judgments of both model builders and decision makers. It is the way in which the problem situation is perceived and presented by modelers and users. The formal model is the translation of the conceptual model into mathematical symbols, or into computer languages, or into both. Of course, a model can be qualitative or quantitative, although Landry *et al* focus solely on the latter. Landry *et al* write that the purpose of developing a formal model is to be able to study the problem and/or to obtain solutions for formulating recommendations. According

to Landry *et al*, the solution constitutes the basis for the recommendations to resolve, at least to some extent, the problem. Landry *et al's* perception of conceptual model, formal model and solution is akin to philosophy, methodology and the recommendations that emerge as a result of implementing the methodology, respectively.

Based on the above three kinds of created knowledge, Landry *et al* propose five different types of validation; conceptual, logical, experimental, operational, and data, validation. According to Landry *et al*, conceptual validation underpins the degree of relevance of the assumption and theory underlying the conceptual model of the problem situation for the intended users, and use of the model is the main concern of conceptual validity. Landry *et al* write that

> "The conceptual validation aims, in general terms, at answering questions such as: Are we looking at the problem situation from the appropriate perspective? Is this perspective susceptible to leading to appropriate solutions? To what extent are the constructs the way variables are linked together) representative of the situation as perceived by the actors?" (Landry *et al*, 1983, page 212).

Conceptual validation is akin to establishing the cognitive adequacy of the metaphysical assumptions of the created knowledge. Logical validation is concerned with the capacity of the formal model to describe, correctly and accurately, the problem situation as defined in the conceptual model. Landry *et al* write that logical validation implies verifying whether any pertinent variable or relationship has been omitted from the formal model. Logical validation also includes verification, that is, whether the computer based formal model is constructed as intended and as described in the conceptual model. Landry *et al* state that

> "The translation of the conceptual model into a formal model should be made as faithfully as possible so as not to lose any essential element or relationship of the problem situation. Logical validity is the attribute of a model for which such a translation is done correctly, and verification is one process through which this type of validity is enhanced." (Landry, *et al*, 1983, page 213).

Logical validation therefore underpins both the conformity of the created knowledge to its metaphysical assumptions and the internal coherence of the methodology itself. They state that experimental validation refers to the quality and efficiency of the solution mechanism, be it algorithmic, heuristic, or experimental. It deals with the type of solutions, obtainable from the formal models, with the efficiency of obtaining the solutions and with the sensitivity of the solutions to the changes in the values of the model's parameters. Experimental validation therefore focuses on the internal adequacy; the consistence and coherence of the formal model, or methodology. According to Landry *et al*, operational validation refers to the quality and applicability of the solutions and recommendations as perceived by the users. Operational validation produces information that may help decision makers to accept, or reject the solutions and recommendations of the formal models to be implemented. It also indicates whether the model has the potential to justify the time, efforts, and costs. Operational validation focuses therefore, on the utility of the model.

Finally, data validation is concerned with the sufficiency, accuracy, appropriateness, and availability of data within the acceptable limits of costs. Landry *et al* state that data are used in developing the conceptual and formal models, making sensitivity analysis, and updating the model and its solution if the former is in use. Quoting the work of Forrester, Landry *et al* write that there are basically three types of data bases; mental data bases, written data bases, and numerical data bases. Mental and written data bases are instrumental in building the conceptual model while the numerical data base is additionally used in finalizing the formal model. Data validation entails evaluating the above sources of data for their appropriateness in the modeling process and the difficulties involved in collecting and processing data.

Ferre (1995) also contributes to this debate by writing that for a theory to be adequate, it must both be comprehensive and critical. According to Ferre, a theory is critical if it is consistent, coherent and adequate. On consistence Ferre writes that the ideas forming parts of the theory must not cancel each other by irreconcilable conflict. A coherent theory is one, which enables people to move from one thought to others in a relevantly connected

way. Coherence presupposes the absence of unresolved contradiction, but it goes much further. It allows the hanging together of ideas beyond their simple co-existence. On the issue of adequacy, Ferre writes: that

> "Both logical consistence and logical coherence are standards to be applied to ideas that are being put together in a theory. Critical thought needs another standard, however, leaning to the empirical - or "data" - side, to remind the thinker that a theory needs to be rich enough in its concepts to be fair to the subject matter being wondered about. It is comparatively easy to achieve a tight coherence among ideas if all difficult or recalcitrant data have been left out at the start." (Ferre, 1995, page 6).

Ferre's concept of adequacy theory is akin to Pepper's notion of scope and precision and Checkland's idea of relevance.

Pepper's concept of scope and precision

There is a relationship between Pepper's concept of scope and precision and Ferre's notion of a critical theory. Suppose we want to establish the adequacy of the proposition that Business Process Reengineering (BPR) programmes improve the financial performance of firms. We can do so by developing this proposition in either of two directions, either by discriminating more carefully on the nature of BPR programmes asking for instance: What is a BPR programme? What are its features? How is it designed and implemented, and what do we mean by financial performance? What is the relationship between BPR and financial performance? Pepper (1942) calls this approach the development of the precision of the proposition. In confirming or rejecting the proposition the facts are discriminated into finer details and are linked together. The concept of precision is akin to Ferre's idea of the coherence and consistence of a theory.

Alternatively, we can establish the adequacy of the above proposition by extending the range of circumstances of BPR programmes which supports the fact that the firms' financial performance improves. For instance, how many firms experienced improved financial performance? How much improvement was realized, and what kind of firms are they? Pepper (1942) calls this direction the development of the scope of the proposition.

Whilst precision is internally oriented, scope focuses on finding more corroborative facts from outside. Scope is related to Ferre's (1995) idea of the adequacy of a theory, and Landry *et al*'s (1983) notion of conceptual validation.

Based on the above discussion on related studies on validation of created knowledge, most writers tend to suggest certain criteria as measures for adequacy of created knowledge. The criteria can be perceived belonging to the category of; the cognitive adequacy of metaphysical assumptions of the created knowledge, conformity of the created knowledge to the metaphysical assumptions, reliability of the created knowledge, and the relevance of the created knowledge. According to the aforementioned writers, the adequacy of any created knowledge should be assessed by these criteria.

The cognitive adequacy of metaphysical assumptions

Drawing from the work of Landry *et al* (1983) on conceptual validation, the work of Pepper (1942) on the concept of scope, the philosophy of any created knowledge must be adequate. According to the literature on validation, a philosophy is a metaphysical assumption about the world, held by the knowledge creator. It is a way in which the world is perceived and understood by such a person. Checkland (1981) terms such a view a *Weltanschauun.* Since the adequacy of the philosophy influences the adequacy of the created knowledge based on such a philosophy, it is therefore important to make sure that the philosophy is adequate. According to Pepper (1942), an adequate philosophy is that which is capable of explaining any fact presented to it. Pepper writes that

> "It thus becomes clear that, in the pursuit of reliability, structural corroboration does not stop until it reaches unlimited scope. For as long as there are outlying facts, which might not corroborate the facts already organized by the structural hypothesis, so long will the reliability of that hypothesis be questionable. The ideal structural hypothesis, therefore, is one that all facts will corroborate, a hypothesis of unlimited scope. Such a hypothesis is a world hypothesis...The hypotheses are adequate and the facts genuine if there are no disturbing facts bearing on them outside the arbitrarily limited field. " (Pepper, 1942, page 77).

As far as Pepper is concerned, worldwide scope is the best measure for the adequacy of any philosophy of knowledge created. A philosophy has a worldwide scope if it can describe and explain any fact presented to it.

Conformity of the created knowledge to its metaphysical assumptions

Drawing from the work of Checkland (1995) on technical validation, and that of Landry *et al* (1983) on logical validation, any created knowledge must conform to its metaphysical assumptions. If the assumptions are adequate, it is argued, such conformity will ensure that the created knowledge is also adequate. This applies especially when the created knowledge is a methodology.

Reliability of the created knowledge

Drawing from the work of Ferre (1995) on consistence and coherence of a theory, the work of Landry *et al* (1983) on experimental validation, and the work of Pepper (1942) on precision and structural corroboration, the third criterion for adequacy of any created knowledge is its reliability. The term *reliability* is borrowed from Trochim (1997) who writes that measurements are reliable if they are consistent and coherent. Reliability of created knowledge therefore focuses on the internal coherence and consistence of such knowledge. Reliability of the created knowledge is portrayed by the existence of causal relationships, or contradiction between its parts.

The relevance of created knowledge

Drawing from the work of Landry *et al* (1983) on operational validation, the work of Checkland (1995) on model relevance, the work of Barlas *et al* (1989) on model usefulness, and the work of Ferre (1995) on adequacy of a theory, the fourth criterion for adequacy, is the relevance of created knowledge. These writers hold that the issue of the relevance of the created knowledge hinges on two related issues; the utility of knowledge created, and the ability of such knowledge to enhance learning. The utility of knowledge created refers to the ability of such knowledge to solve problems that it was intended. According to Checkland (1995), the relevance of the created knowledge also refers to its

ability to promote learning. The two issues are related because a created knowledge that promotes learning is likely to have a high degree of utility and vice versa.

Evaluation of the literature on validation

Writers on validation assume that cognitive adequacy of the metaphysical assumptions implies adequacy of philosophy. As seen earlier, this is not the case because adequacy of philosophy implies that the philosophy is both cognitively and ethically adequate. Hence, writers on validation do not consider the ethical aspect of philosophical adequacy. Nevertheless, writers on validation provide useful insights on the criteria for valid knowledge, particularly the consequences of basing inquiry on an adequate philosophy as explained below.

The consequences of basing inquiry on an adequate philosophy

The relationship between the various criteria for adequacy proposed by various writers in the validation of created knowledge literature is shown in figure 5.4. . (Note that the arrows should read "implies that....".). According to figure 5.4, knowledge created based on a cognitively adequate metaphysical assumptions philosophy implies that it is relevant and with a high degree of reliability.

There is a marked relationship figures 5.3 shown on page 161 and 5.4. If we replace "knowledge created based on adequate metaphysical assumptions" shown in figure 5.4 with "knowledge created based on cognitively and ethically adequate philosophy" indicated in figure 5.3, it becomes clear that the consequences of basing inquiry on an adequate philosophy is the creation of relevant and reliable knowledge.

However, figure 5.3 requires the criteria of relevance and reliability to take into account the need for both cognitive and ethical adequacy.

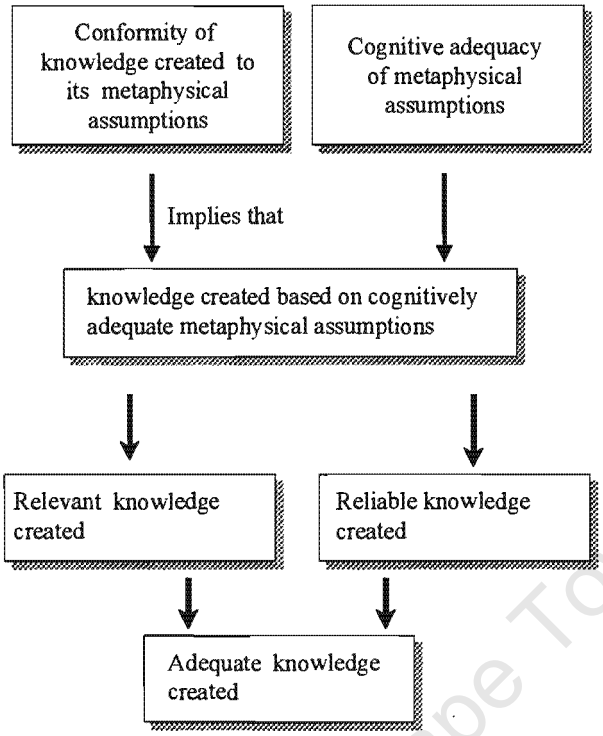

Figure 5.4. The implications of adequate philosophy

5.5 How to pursue inquiry as a philosophical exploration

Though the importance for pursuing inquiry as a philosophical exploration has been established, there is still one question that has not been answered; how do we in practice, guarantee that inquiry is pursued as a philosophical exploration? Figure 5.5 suggests an answer to this question.

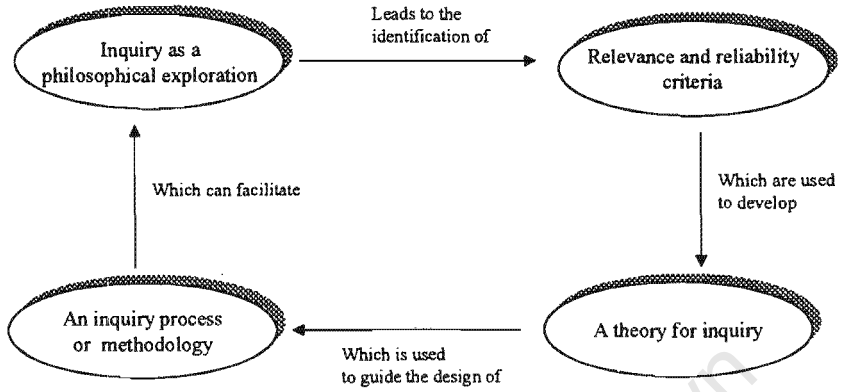

Figure 5.5. How to ensure that inquiry is done as a philosophical exploration

According to the figure, treating inquiry as a philosophical exploration leads to the identification of the criteria for adequacy; the relevance and reliability criteria. The figure also suggests that these criteria need to be used to develop a theory for inquiry which in turn, is adopted to design a the inquiry process, or rather, methodology. The designed methodology if used, can ensure that inquiry is pursued as a philosophical exploration.

5.6 Conclusion

The objective of this chapter was to discuss the first condition of the management intervention framework, which requires inquiry to be treated as a philosophical exploration. In discussing this condition, the chapter has shown that if inquiry is treated as a philosophical exploration, the created knowledge is likely to be based on an adequate philosophy; a philosophy which is cognitively, and ethically adequate.

It has been argued that the reason for treating inquiry as a philosophical exploration can be explored, if knowledge is perceived to be created by moving continuously clockwise and

counterclockwise around the key issues in philosophy. It has also been argued that it is through these movements that knowledge, which is based on a philosophy that is both cognitively and ethically adequate is created. The chapter has shown that knowledge based on this kind of philosophy tends to be relevant and highly reliable. This makes such knowledge adequate.

The chapter has also demonstrated how to ensure that inquiry is pursued as a philosophical exploration.

In the context of the first, and second conditions of the management intervention framework adopted in this thesis, these findings have important ramifications. Since management intervention is a form of inquiry, treating inquiry as a philosophical exploration facilitates the identification of the criteria for adequacy of a theory for management intervention; the relevance, and reliability criteria. Adopting the output of the first condition of the management intervention framework to guide the development of a theory requires using the criteria of relevance and reliability to guide the design of a theory for management intervention. In order to be relevant and reliable, such a theory is required to be both cognitively and ethically adequate.

Writers in the validation of knowledge created literature suggest theories that are cognitively but not ethically adequate. This is also applicable to theories of organizational decline/management intervention discussed in chapter one.

Hence, treating inquiry as a philosophical exploration broads and enriches the meaning of adequacy of a theory. The design of such a theory is discussed in chapter six.

Chapter Six. Towards a Theory for Intervention in Business Management Problems.

> Reasoned intervention based on theory can help us to learn and can reduce costs...If you do not know what your theories are you cannot make links with other disciplines. If you do not know what your theories are you cannot explain your knowledge and pass it on to the next generation. If you do not have a theoretical check then you cannot appreciate that the methods you use might be working for the wrong reasons....(Jackson, 1995, page 38).

6.1 Introduction

As argued in chapter five, treating inquiry as a philosophical exploration, which is the first condition of our management intervention framework, facilitates the identification of the criteria for adequacy of a theory for management intervention; the relevance and reliability criteria.

This chapter focuses on the second condition of the framework, which requires adopting the relevance and reliability criteria to develop a theory for management intervention. The adoption of these criteria to develop a theory for management intervention is necessary to ensure that such a theory is cognitively and ethically adequate.

Building on the work of Burrell and Morgan (1979) on sociological paradigms, Vickers (1968; 1995) on fields of inquiry, and the work of Jackson (1985), a theory for management intervention that satisfies the relevance and reliability criteria is developed.

The chapter concludes by arguing that if the developed theory for management intervention is adopted to design the intervention methodology, the latter is also likely to be relevant and reliable, and hence produce successful results.

Since the relevance and reliability criteria connect the adequacy of a theory to the ability of dealing with business management problems, it is therefore important to first discuss the nature of these problems before a theory for management intervention is developed.

6.2 Structural characteristics of management problems

Checkland (1981) classifies systems into four categories; natural, designed, human activity, and social and cultural, systems. Natural systems make up the universe in a hierarchy from subatomic to galactic systems. Designed systems can be both physical (tools, machines, etc.) and abstract (language, philosophy, etc.). Human activity systems are systems populated by human beings, for instance, business organizations. Social and cultural systems on the other hand, signify the interpersonal relationships between human beings. It is worth noting that this classification is not exclusive, because in human activity systems one can find designed systems, social and cultural systems. For instance, humans in certain interpersonal relationships perform activities using designed systems in a natural system environment If this is the case, then it implies that human activity systems, which include among others business organizations, are composed of people and things. Here, the term "things" includes both natural and designed systems.

Ackoff (1981) gives a classification of systems similar to that of Checkland (1981). He identifies three types of system. These include mechanistic systems in which the systems and the parts have no choice of their own, organismic systems which have choice of their own but their parts do not, and social systems in which both the systems and their parts have choices of their own. While Ackoff's organismic and mechanistic systems correspond to Checkland's natural systems, most mechanistic systems approximate designed systems.

Ackoff's social systems include Checkland's human activity systems as well as cultural and social systems.

On the basis of the above discussion, it can be stated that like organizations, business management problems can be described as composed of both people and things. If such problems are to be well understood one needs to look into their structural characteristics. According to Pepper (1942), structural characteristics are basic concepts of explanation and description of phenomena (in this case, management problems). Understanding the structural characteristics of management problems is necessary before one can effectively deal with them.

Since business management problems are composed of both people and things, three groups of structural characteristics of such problems can be proposed; organic characteristics, cultural characteristics and power characteristics.

There is a similarity between Flood's (1996) 'key dimensions of organization' mentioned earlier and the structural characteristics of business management problems in that both concepts can be used to understand business management problems. (Note that the key dimensions of organization can also be considered as key dimensions of business management problems).

However, the two concepts differ because, while the structural characteristics are synthetic, the key dimensions seem to be analytical. The key dimensions are analytical because in describing a management problem, there is no guarantee that all of them will be used. Writes may adopt one or all of them to describe a management problem, though Flood (1996) advises to consider all dimensions. This however, does not apply to the structural characteristics (please refer to their definition as given by Pepper (1942)). The structural characteristics require that all of them *must be considered* if a given management problem is to be understood.

Note that while cultural and power characteristics are related to Flood's culture and political dimensions respectively, organic characteristics include both organizational processes and organizational design dimensions. A detailed discussion of the structural characteristics of management problems is given next.

6.2.1 Organic characteristics

Organic characteristics are the source of organic complexity inherent in management problems. Organic complexity is akin to what Senge (1990a) calls 'detailed and dynamic complexity'. According to Senge, whilst detailed complexity is determined by the number of variables, or parts of the system, dynamic complexity is a function of interaction and feedback between the parts within the system and between the system and the larger environment.

Cilliers (1995) identifies a number of characteristics of complex systems, which include business management problems. Most of these characteristics are essentially organic. Cilliers writes that

- Complex systems consist of a large number of elements
- These elements interact in a dynamic way. As a result, complex systems change over time
- The interaction is fairly rich in the sense that any element in the system influences, and is influenced by, quite a few others.
- Apart from being dynamic and rich, the interaction is non-linear in nature.
- The interactions normally have a fairly short range i.e. elements receive information from their immediate neighbours
- There are feedback loops in the interactions. The effects of any action taken by a certain element can feedback onto itself
- Complex systems are normally open to the environment
- They operate under conditions far from equilibrium

- Complex systems have a history and,
- Each element in the system is ignorant of the behaviour of the system as a whole, it responds only to information that is available to its locality.

Another characteristic that does not feature in Cilliers's list is that complex systems are probabilistic in their behaviour (Flood *et al*, 1993). This is a very important characteristic of organizations and management problems in particular. Uncertainty related to the future is a characteristic feature of management problems which makes them problematic and hence, complex.

Therefore in order to deal with the organic characteristics of business management problems it seems one needs

- To consider the larger environment
- To take into cognizance the interaction and feedback between the problem variables and between such variables and the larger environment. Note that interaction and feedback may lead to misperceptions of feedback (Masuch, 1985); (Repenning, 1996); (Senge, 1990a); (Sterman, 1989); (Sterman *et al*, 1994).
- A structure to guide the interaction process
- To manage uncertainty.

6.2.2 Cultural characteristics

Cilliers's list does not consider that complex systems may not be composed of things alone, but of both things and people. It is Flood *et al* (1993) who propose a list that takes into account the characteristics of things and people. According to Flood *et al* (1993), complex systems have the following characteristics:

- A large number of elements
- Many interactions between the elements
- Attributes of the elements are not predetermined

- Interaction between elements is loosely organized
- They are probabilistic in their behaviour
- The system evolves over time
- The system is largely open to environment.
- Sub systems are purposeful and generate their own goals
- The system is subject to behavioural influences

Note that all the above characteristics except the last two address organic characteristics of management problems. The fact that in complex systems the sub systems are purposeful and generate their own goals implies that in a management problem, the various stakeholders have their own interpretations of such a problem and all issues related to it. The stakeholders also have their own interests and values concerning the problem and any issues related to it.

Brown (1995) defines culture as pattern of beliefs, values and learnt ways of coping with experience, that have developed during the course of an organization's history and tend to be manifested in its material arrangements and the behaviour of its members. If we adopt this definition of culture, we can conclude that dealing with various stakeholders' interpretations, values and interests related to a management problem, is essentially, dealing with the cultural characteristics of such a problem. Hence, it seems, in order to deal with the cultural characteristics of management problems one needs

- To create a shared understanding of the problem and all issues surrounding it. Such a shared understanding mainly focuses on the organic characteristics of the problem.
- To involve all relevant stakeholders in dealing with the problem.

6.2.3 Power characteristics

Pfeffer (1981) quotes Dahl defining power as "a relation among social actors in which one social actor A, can get another social actor B, to do something that B would not otherwise

have done". According to Pfeffer (1981), power becomes defined as a force, and more specifically, a force sufficient to change the probability of B's behaviour from what it would have been in the absence of the application of force.

The claim that power characteristics are inherent in management problems is supported by two arguments. The first supporting argument is based on Flood *et al's* (1993) view that complex systems are subject to behaviuoral influences. This view implies that it is possible for certain stakeholders to be influenced by others to adopt certain values and interests related to the problem. It is also possible that certain stakeholders may be influenced by others to adopt certain ways of looking at the problem itself. The second supporting argument can be drawn from Foucault's account of the relationship between power and knowledge. Foucault writes that

> "We should admit that power produces knowledge (and not simply by encouraging it because it serves power or by applying it because it is useful); that power and knowledge directly imply one another....these power - knowledge relations are to be analysed, therefore not on the basis of a subject of knowledge who is or is not free in relation to power systems, but on the contrary, the subject who knows, the object to be known and the modalities of knowledge must be regarded as so many effects of these fundamental implications of power - knowledge and their historical transformations." (Foucault, 1977, page 27 -28).

If we agree with Foucault that power and knowledge are inseparable and that dealing with management problems is a process of knowledge creation, then we must that power is inherent in management problems.

Burrell and Morgan (1979) citing the work of Gramsci on critical theory, write that power and domination is vested not only in materially located means of coercion and oppression, but also within men's consciousness, through the creation of ideological hegemony. We can therefore identify two kinds of power, personal and ideological power. Ideological power refers to the capability of certain assumptions, theories or practices to dominate other kind of assumptions, theories or practices in a given period of time. However, the

literature on power has paid much attention to the potential of one social actor to overcome resistance from other social actors in achieving his or her own objective i.e., personal power.

6.2.3.1 Personal power

Morgan (1986) identifies a long list of sources of personal power. The list suggests that sources of power fall into two groups; those related to authority and those related to resources. Authority related sources of power include formal authority, use of organizational structure, rules and regulations, control of decision processes, control of boundaries, control of counter organizations, symbolism and the management of meaning, gender and the management of gender relations, and the power one already has. Resource related sources of power include control of scarce resources, control of knowledge and information, ability to deal with uncertainty, control of technology, interpersonal alliances, networks, and control of informal organization. Structural factors that define the stage of action appear not to be a source of power as suggested by Morgan, but rather, a constraint on the use of such power.

6.2.3.2 Ideological power

In the context of organization, the main source of ideological power is the prevailing organizational culture i.e. the deeper level basic assumptions and beliefs that are shared by members of an organization and operate unconsciously (Schein, 1988). Such assumptions define in a basic taken for granted fashion, an organization's view of itself and the environment. Ideological power can break or make change.

It seems that in order to deal with power characteristics one needs to

- Challenge the adequacy of the existing basic assumptions
- Uncover any issues related to personal and ideological power that can make dealing with the organic and cultural characteristics ineffective.

Having discussed the structural characteristics of management problems, let us now turn to the meaning of cognitive and ethical criteria for adequacy before developing a theory for management intervention.

6.3 The meaning of cognitive and ethical adequacy

As argued in chapter five, the criterion for adequacy of philosophy requires the created knowledge to be cognitively and ethically adequate. There is a similarity between the cognitive and ethical adequacy of knowledge and what Pepper (1942) terms the "cognitive and practical justification of an attitude of belief" respectively. In explaining the difference between these two, Pepper writes that

> "Let us take some ordinary, everyday instance of belief to guide us by way of illustration. Take my judgment that it will rain tomorrow. There appear to be three rather obvious constituents of this judgment: (1) a *content*, or what I believe, in this example "It will rain tomorrow"; (2) an *attitude*, in this instance a positive attitude with some degree of intensity, which may vary all the way from a maximum called certainty to a minimum just above that balance of judgment called unbelief..; (3) *grounds* for belief, in this instance consisting of such items as my experience with weather conditions in this vicinity, the appearance of the sky today, the wind, the barometer, the weatherman's prediction in the newspaper, and my conception of the weatherman's reliability. This set of three constituents we are now calling belief in the broad sense.."(Pepper, 1942, page 12).

According to Pepper, the grounds for belief in the above example are cognitive and not ethical, because they are not based on what Ulrich (1983) terms " a dialogical concept of rationality". In the above example it is the involved making the decision and not the affected, as a consequence, issues related to *legitimacy* and *morality* are not considered as grounds for judgment. For instance, one may ask, is right to spend energy forecasting tomorrow's weather in the first place? Whose purpose is being served by doing so, and what purpose anyway? These issues constitute the ethical adequacy of judgment. Pepper further notes that

> "The two attitudes can easily be confused because they are closely interrelated. It may help to call the practical attitude "conviction" and restrict "belief" to the cognitive attitude. So, our point is not to confuse conviction with belief".
> (Pepper, 1942, page 14).

Pepper (1942) downplays the role of ethical adequacy in inquiry. He writes that

> "But, all these matters are irrelevant to our inquiry, which is primarily cognitive. Only as conviction may itself, as some pragmatists say, be in some circumstances a ground for belief do we need to concern ourselves with conviction."
> (Pepper, 1942, page 15).

According to Pepper (1942), the ethical adequacy is secondary to the cognitive. However, Pepper is being unfair here, because as it was shown in chapter five, ethical and cognitive adequacy, are all necessary and of equal importance. Focusing solely on cognitive adequacy may lead to pursuing the wrong inquiry and/or for the wrong purpose. On the other hand, Ulrich (1983) notes that

> "Hence a dialogical concept of rationality must replace the conventional 'monological' understanding of rational justification. Whereas the latter relies on deductive logic and empirical corroboration or falsification attempts on the part of the involved, the former must be grounded in a model of rational discourse that would explain the conditions for reaching 'rational' (as opposed to merely factual) consensus among all involved and the affected in regard to the 'rightness' (acceptability) of a design's normative content." (Ulrich, 1983, page 277).

Because Ulrich (1983) emphasizes on the rightness of a design's normative content as a ground for judgment, he perceives the cognitive adequacy to be secondary to the ethical adequacy. The view that Ulrich perceives cognitive adequacy to be secondary to the ethical adequacy, is also acknowledged by Jackson, who states that

> "The first point concerns Ulrich's criticisms of systems science and its usefulness in social systems design. These criticisms are, in my opinion, overplayed and the important role that instrumental reason can play in planning tends, therefore, to get neglected". (Jackson, 1985, page 880).

According to Jackson, instrumental reason is akin to cognitive adequacy of judgment. As mentioned earlier, in this thesis, the criteria for cognitive and ethical adequacy are all necessary and of equal importance to the knowledge creation process.

6.3.1 Cognitive and ethical adequacy of a theory for management intervention

The criterion for adequacy of philosophy requires the created knowledge to be cognitively and ethically adequate. If the created known is a theory for management intervention, the need to be cognitively adequate requires such a theory to be capable of dealing with the organic characteristics of management problems. The need for a theory to be ethically adequate requires it to be capable of dealing with both cultural and power characteristics of management problems.

The need for cognitive and ethical adequacy of a theory therefore emphasize two related issues. The first is the vindication of the earlier argument that management problems are characterized by three interrelated characteristics; organic, cultural and power. The second issue is that in order for a management intervention theory to be adequate, it must be capable of dealing with all the characteristics of management problems.

The emphasis on the second issue is also supported by Ashby's law of requisite variety (Ashby, 1956); (Clemson, 1984). The law of requisite variety states that given a system and some regulator of the system, the amount of regulation attainable is absolutely limited by the variety of the regulator. This law implies that the complexity of a management problem relative to that of a theory for intervention is important if intervention is to be successfully undertaken. This relativity is well explained by Vester (1988) who writes that the boxing metaphor - fighting the other's complexity with my complexity - is a poor problem solving metaphor. On the other hand, Vester argues that the jujitsu metaphor - fighting the other's complexity with his complexity - is a much better one. The jujitsu metaphor has two important connotations. First, the metaphor implies that the act of

intervention requires dealing with the characteristics of management problems. Second, it also implies that in order for an intervention theory to deal with the characteristics of management problems, it must itself exhibit these characteristics. This means that a theory for management intervention, which is relevant and reliable, should be capable of dealing with all the characteristics of management problems.

A theory capable of dealing with all the characteristics of management exhibits certain features. These features which in this thesis, are known as 'critical success factors' are discussed next.

6.4 Identification of the critical success factors

The critical success factors to be identified in this section constitute a theory for management intervention. These factors explain how management intervention should be undertaken. The second condition of our management intervention framework therefore requires that the identification of the critical success factors must be guided by the relevance and reliability criteria.

6.4.1 The need to satisfy the relevance criterion

As mentioned earlier, a relevant theory must be cognitively and ethically adequate. Because such theory is cognitively and ethically adequate, it is capable of dealing with all the characteristics of management problems. This kind of theory is likely to have utility and capable of promoting stakeholder learning (Checkland, 1995).

The ability of the theory to facilitate Vickers's three fields of inquiry; the act of reality, value, and instrumental, judgment (Vickers, 1968; 1995), is considered the necessary minimum condition to be satisfied by a theory that is perceived to be relevant. It is a necessary minimum condition because, Vickers's fields of inquiry seem to deal with

organic and to some extent, cultural characteristics of management problems. Vickers's fields of inquiry are discussed in detail next.

6.4.1.1 Vickers's concept of appreciation

Vickers's concept of appreciation captures issues related to reality and value judgment. Vickers writes that

> "An appreciation involves making judgments of fact about the state of the system both internally and in its external relations. I will call these reality judgments. These include judgments about what the state will be or might be on various hypotheses as well as judgments of what it is and has been. They may thus be actual or hypothetical, past, present or future. It also involves making judgments about the significance of these facts to the appreciator or to the body for whom the appreciation is made. These judgments I will call value judgments."
> (Vickers, 1995, page 54).

Reality judgments are judgments that range from basic cause and effect to more subtle and complex issues. Value judgments include judgments about imperatives, wants, and desires, prudential or self interest considerations, and individual and collective goals and norms. Vickers (1995) states that the relationships between reality and value judgments is close and mutual; facts are relevant only in relation to some judgment of value, and judgments of value are operative only in relation to some configuration of fact. Reality judgment; the observation of the actual, and value judgment; the comparison of the observed fact with the norm, are Vickers's first and second field of inquiry respectively.

6.4.1.2 Vickers's concept of instrumental judgment

Vickers's third field of inquiry consists of making instrumental judgments i.e., those concerning the best means available to reduce the divergence between "is" from reality judgments and "ought" from value judgments. Instrumental judgments also include the use of means such as the personal resources of time, attention, intellect, passion, money, and power, along with those social resources that can be administered and applied through

communication, coalition, and access to social institutions. On instrumental judgment, Vickers (1968) explains that

> "The third field - the choice of action - is separable and may be irrelevant. Appreciation may or may not call for - and if it does, it may or may not evoke - action which may or may not abate an observed discrepancy, action which I call regulative action....There may be nothing to be done....The selective mechanism for action may act at random or may be systematically wrong."
> (Vickers, 1968, page 149).

According to Vickers, an appreciative action may or may not lead to a regulative action. In this thesis, the three kinds of judgment are represented by a single term; management judgment.

While reality judgment may be perceived to deal mainly with the organic characteristics of management problems, value judgment seems to deal with the cultural characteristics. Value judgment focuses on the exploration of various views regarding the organic characteristics, creation of a shared understanding of such characteristics, and their significance to the stakeholders. We shall regard management judgment (the act of appreciation and instrumental judgment) as *a critical success factor,* which is one of the features of our management intervention theory. If such a factor is considered in the design of an intervention methodology, then that methodology is likely to produce successful results.

6.4.1.3 The limitation of management judgment

Since the act of management judgment as a critical success factor is not capable of dealing with power characteristics of management problems, it is therefore necessary but not sufficient to satisfy the cognitive and ethical adequacy requirements of the relevance criterion. Note that in the context of an adequate philosophy criterion, the ethical adequacy requires a theory to be capable of dealing with both cultural and power characteristics of

management problems. Hence, it is necessary to search for critical success factors other than management judgment. We shall revert to this after the next section.

6.4.2 The need to satisfy the reliability criterion

The reliability of created knowledge criterion does not lead to new critical success factors other than management judgment, but rather raises two important issues. First, if the created knowledge is a methodology, the reliability criterion highlights the need to adopt a systematic approach of moving from theory to methodology, ensuring conformity and connectivity between the former and the latter. Second, if the created knowledge is a methodology or theory, the reliability of created knowledge ensures that the phases of the methodology are coherent and consistent (Ferre, 1995). The criterion will therefore require the critical success factors to be identified to be coherent and consistent with each other.

Let us now revert to the search for more critical success factors other than management judgment. The author finds the work of Burrell and Morgan (1979) on sociological paradigms very useful in this regard for reasons to be explained in a moment.

6.5 The search for more critical success factors

Burrell and Morgan (1979) identify four sociological paradigms; functionalism, interpretive, radical humanism, and radical structuralism. They hold that functionalism, which, is viewed as the foundation of sociology as a discipline, comprises attempts of social philosophers to apply ideas and methods of the natural sciences to elucidate social affairs. They write that the main concern of the interpretive paradigm is to understand the world as it is, to understand the fundamental nature of the social world at the level of subjective experience. It seeks explanation within the realm of individual consciousness and subjectivity; within the frame of reference of the participant, as opposed to that of the observer.

Burrell *et al* maintain that the radical humanism paradigm is defined by its concern to develop a sociology of radical change from a subjectivist standpoint. Its frame of reference is committed to a view of society, which emphasizes the importance of its emancipation by overthrowing the limitations of existing social arrangements through ideological awareness. The basic notion of radical humanism is that the consciousness of man is dominated by the ideological superstructures with which man interacts.

The ideological structures create ideological hegemony, which in turn prevents man from fulfilling his achievements. Though radical structuralism is also concerned with radical change like radical humanism, the latter concentrates on consciousness while the former focuses on structural and power relationships and the role of deep seated contradictions, as key issues in attaining radical change. The four paradigms which constitute what Burrell *et al* call 'high range social theories', are shown in figure 6.1.

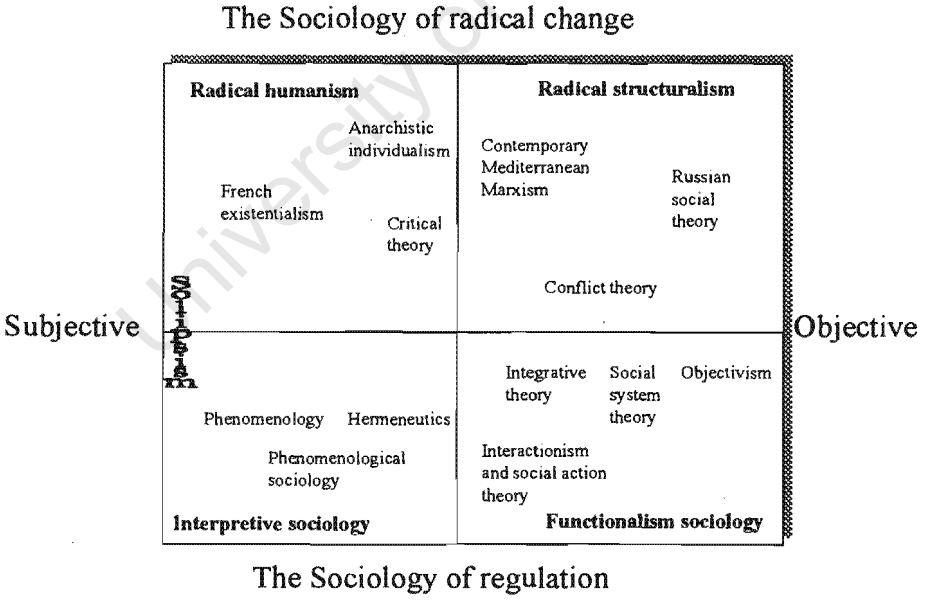

Figure 6.1. Burrell and Morgan Sociological Paradigms
Adopted from Burrell *et al* (1979).

Burrell and Morgan sociological paradigms might be useful if adopted to facilitate the search for critical success factors because of following reasons:

- The need for Burrell and Morgan sociological paradigms to provide theoretical support for management intervention has also been acknowledged by other writers for instance, Jackson (1982) writes that

> "The problem remains of where applied systems research can turn for the necessary theoretical support. General Systems Theory (GST) does not seem likely to provide. Vickers has recently lamented the lack of support the professions, which manage human systems derive from the social sciences. But Vickers is not altogether fair here. There is a mass of relevant theory available in the social sciences although this is certainly in need of being sorted out. It must therefore be to the social sciences that the professions which, manage human systems, and systems practitioners, turn for the theoretical guidance they need. A small start has in fact been made in relating systems thinking to social theory in general. Checkland has identified hard systems methodologies as functionalist and has related his own methodology to the phenomenological/hermeneutic traditional." (Jackson, 1982, page 17).

  Jackson proceeds to identify the work of Churchman (1971) on inquiring systems and the work of Ackoff (1981) on interactive planning to be based on the interpretive paradigm.

- There seems to be a correspondence between the various theories of reality shown in figure 5.1 on page 143, and the different social theories indicated in figure 6.1. For instance, theories of reality located in the subjective – static quadrant correspond to social theories that fall under the interpretive paradigm. Such a correspondence implies that in order for one to hold a theory of reality that is located in a certain quadrant, he or she is required to subscribe to a social theory that falls in a corresponding quadrant. This correspondence has created a need for adopting Burrell *et al's* sociological paradigms.
- A social theory is a description and explanation of society. It describes and explains among other things, the social functions and the underlying processes that shape it. Since one of the functions of the society is creation of knowledge for management

intervention, it is therefore justifiable to adopt Burrell *et al's* social theories to understand, and undertake management intervention.

- The need to satisfy the relevance criterion requires a theory for management intervention to be both cognitively and ethically adequate. While cognitive adequacy provides the ability for a theory to deal with organic characteristics of management problems, ethical adequacy ensures that the theory has the ability to deal with both cultural and power characteristics. A theory for management intervention that is relevant is likely to be developed from the sociological paradigms because; the functionalist, interpretive, radical humanism, radical structuralism paradigms will provides means for dealing with organic, cultural, ideological power and personal power, characteristics of management problems respectively.

Burrell and Morgan sociological paradigms are now discussed in more detail.

6.5.1 Functionalist sociology

Burrell *et al* identify four categories of functionalist paradigm namely, social system theory, interactionism, social action theory, integrative theory and objectivism.

6.5.1.1 Social system theory

Social system theory adopts mechanistic and biological analogies in explaining social affairs. Burrell *et al* identify the work of Comte, Spencer, Pareto, Durkheim and Parsons as falling into this category. According to Burrell *et al*, the social system theory was pioneered by Comte whose vision was that methodologies and methods found in natural sciences should be adopted in explaining the relationship between the various parts of society and how this relationship changes over time i.e., social order and regulation. He used biology as analogy to explain the society. Herbert Spencer, influenced by the work of Darwin, pursed Comte's concepts extensively and established the implications of the biological analogy for sociology. Spencer explained social phenomena in terms of structure

and function, elaborating Comte's view of a need to understand the parts in the context of the whole, and that the properties of the whole are determined by the properties of the parts.

According to Burrell *et al,* another enthusiast of social system theory is Vilfredo Pareto who constructed a rigorous sociology that gave due recognition to the irrational elements in human behaviour. He sought experimental reality by applying to the social sciences the methods that have proved themselves in physics, chemistry, and biology. Pareto's concept of equilibrium was a mechanistic way of viewing society. On the other hand, Emile Durkheim did not believe that an analysis of the parts, which existed in social organism and the role they performed was adequate for understanding social issues. He disagreed with these who thought that they have accounted for phenomena once they identify their usefulness and the roles they play. He believed that causal analysis is required in addition to functional analysis. Durkheim's arguments do not make him disown the social system theory but rather to enrich it by adding the causal analysis to the functional analysis. The use of organic and machine metaphor proposed by Pepper (1942) and Morgan (1986) to explain phenomena including social issues, also falls under this sociological paradigm.

6.5.1.2 Interactionism

Interactionism maintains that society can be described and explained in terms of group interactions and associations. Burrell *et al* cite the work of Georg Simmel and George Herbert Mead as belonging to this paradigm. Interactionists argue that society exists because of interaction and association. Association is interaction between social actors and it may vary in intensity and exhibit different degrees of formality. According to Simmel (1950), the concept of association accounts to a greater extent on what is taking place in society. He argues that irrespective of political affiliation, religion, race, or knowledge, all processes of interaction are similar in form for example, subordination, domination, competition, symbiosis, marriage, hate, or love. Simmel writes that

> "Sociology asks what happens to men and by what rules they behave, not insofar as they unfold their understandable individual existence in their totalities, but insofar as they form groups and are determined by their group existence because of interaction." (Simmel, 1950, page 10 - 11).

The view that Simmel describes society as association, is also acknowledged by Coser who writes that

> "Simmel was concerned with the study of society as an intricate web of multiple relations established among individuals in a constant interaction with one another. The larger super individual structures - the state, the clan, the family the city or the trade union - turn out to be but crystallizations of the interaction, even though they may attain autonomy and permanency and confront the individual as if they are alien powers. The major field of study for the student of society is, hence, association rather than society. " (Coser, 1965, page 5).

Though Simmel accepts the existence of conflict between an individual and the institution in which such an individual belongs, but he does not perceive the conflict as an impetus for change. Instead, Simmel argues that the conflict paves the way for mutual understanding and the maintenance of status quo. Simmel's view on social conflict is well explained by Coser:

> "Social conflict necessarily involves reciprocal action and is, hence based on reciprocity rather than unilateral imposition. Conflict might often bind parties, which might otherwise withdraw. It might serve as a safety valve for negative attitudes and feelings, making further relationships possible. For example conflict might lead to a strengthening of the position of one or more parties to the relationship, increasing their dignity and self esteem through self - assertion. Thus, conflict might produce new ties among the participants, strengthening their existing bonds, or establishing new ones. In this sense, conflict might be considered a creative force rather than a destructive one....The good society - far from conflict free - is, on the contrary, sewn together by a variety of crisis crossing conflicts among its component parts.
> (Coser, 1965, page 12).

6.5.1.3 Objectivism

Burrell *et al* write that objectivism is characterized by an extremely high degree of commitment to methodologies and methods derived from natural sciences. Certainly, there is a close relationship between social systems theory and objectivism. While the former focuses on the use of metaphors from natural science to elucidate social phenomena, the latter treats social phenomena as if they were the natural world. Objectivists treat human beings as machines or biological organisms, and social structure as if it were a physical structure. Within objectivism the study of human behaviour is very much geared to the use of experiments typical of those used in natural sciences.

The main objective of such experiments is to uncover universal laws and regularities that explain the behaviour of man. These laws exist in the outside world and are not a product of human consciousness. Understanding of these laws facilitates the manipulation and regulation of man. At the level of the organization, there are a number of approaches based on such universal laws. They include for instance, the studies on group behaviour and motivation at work.

6.5.1.4 Social action theory

Burrell *et al* hold that social action theory differentiates between natural and social sciences and that the former is concerned with the study of external processes regarding the material world and the latter focuses on the internal and intangible processes of human minds. As a consequence the two require different approaches for understanding. The role of verstehen - of placing oneself in the role of the actor, was seen as a means of relating inner experience to outward actors, (Burrell *et al*, 1979). The work of Max Weber falls into this category. The action theory comprises a number of assumptions that provide a mode of analysis for explaining the action and conduct of individuals in typical situations. It actually describes society in terms of the actions that it undertakes. The action theory, has been criticized by interactionists, as Michael *et al* report that

"(Simmel) recognizes early on that an action theory approach to sociology, taking the single actor as its starting point instead of the single individual, precludes certain social facts from consideration. Thus, socially conditioned passivity, such as suffering and pessimism, for instance, are not conceptualisable in action theory, because they themselves do not constitute actions. Suffering and pessimism however, constitute the results of social alienation arising from ongoing social differentiation and the advanced money economy. For action theory, the suffering from society only then becomes a social fact, if suffering is transformed into action as, for instance, in the shape of suicide, aggression, violence and the like."
(Michael *et al*, 1990, page 23).

Evaluation

According to Burrell *et al* (1979), most of the social theories under functionalism are based on theories of reality that are located in the objective – static quadrant (please, refer to figure 5.1 in chapter five). For instance, the social system theory, interactionism and objectivism are all based on theories of reality that can be located in the objective – static quadrant. The issue regarding which social theory should be considered as a representative of other theories will largely depend on how adequately such a theory explains and describes the characteristics of management problems. Since interactionism relatively adequately describes both the organic and cultural characteristics in comparison with other social theories under functionalism, it is therefore adopted for our purpose. It seems the remaining social theories under functionalism, are able to describe satisfactorily the organic, and not the cultural, characteristics.

6.5.2 The interpretive paradigm

Burrell *et al* argue that the interpretive paradigm is informed by a concern to understand the world as it is, to understand the fundamental nature of the social world at the level of subjective experience. It seeks explanation within the realm of individual consciousness and subjectivity, within the frame of reference of the participant as opposed to the observer of the action. Burrell *et al* writes that

"It (interpretive paradigm) sees the social world as an emergent social process which, is created by the individuals concerned. Social reality insofar as it is recognised to have any existence outside the consciousness of any single individual, is regarded as being little more than a network of assumptions and inter - subjectively shared meanings. The ontological status of the social world is viewed as extremely questionable and problematic as far as theorists located within the interpretive paradigm are concerned.... They often delve into depths of human consciousness and subjectivity in their quest for fundamental meanings, which underlie social life." (Burrell *et al*, 1979, page 30 - 31).

Evaluation

It seems the interpretive paradigm is based on theories of reality located in the subjective – static quadrant. If this is the case, then there exist competing paradigms that also can be located in this quadrant. These paradigms include Peirce's concept of perceptual judgment (Hookway, 1985) and the idea of management judgment discussed earlier. A fair evaluation of the interpretive paradigm can be achieved if it is considered in relation to these competing paradigms.

6.5.3 Peirce's concept of perceptual judgment

There is a difference between interpretive paradigm and Peirce's concept of perceptual judgment. While the former holds that reality is in individuals' consciousness, the latter maintains that there are real things out there and what individuals do is to interpret them. Hookway quotes Peirce on perceptual judgment as follows

"There are real things, whose characters are entirely independent of our opinions about them, those realities affect our sense according to regular laws, and though our sensations are as different as our relations to the objects, yet by taking advantage of the laws of perception, we can ascertain by reasoning how things really are; and any man, if he has sufficient experience and reason enough about it, will be led to one true conclusion." (Hookway, 1985, page 44).

It is therefore apparent that perceptual judgment is undertaken through the laws of perception, which govern the manner in which our minds work. On laws that govern

perception judgment Hookway (1985) states that there are, in our cognitive experience, two elements; the immediate data, such as those of sense which are present or given to the mind, and a form, construction, or interpretation, which represents the activity of thought. This immediate data or rather, percept is a form of sensory given. Hookway writes that

> "The percept theory distinguishes two types of sensory awareness; the immediate and mediate. The sense data of which we are immediately aware are not physical objects, but are either sensory states of ourselves or abstract objects such as surfaces. Our sensory contact with the familiar physical world is mediated through our more direct awareness of these sense data...Many would follow the familiar line that in order to describe what is immediately perceived, without conceptual elaboration we make use of a very limited vocabulary." (Hookway, 1985, page 156).

This implies that in making phenomena intelligible, we perceive them as part of the total percepts that we experienced at some time before. On the relationship between perceptual judgment and reality, Hookway (1985) sums up as follows:-

- The real world, which, is the object of our inquiries, is only encountered through perception.
- Through perception we acquire information about our environment, and the judgments we make are occasioned by a sensory contact with their objects.
- There are several elements in the view of perception. They are:-
  - Perceptual judgments are certain and acritical
  - They have initial credibility
  - They are fallible
  - They can be perceived through the immediate perception.

It appears that perceptual judgments are nothing but commonsense facts. The concept of perceptual judgment parallels the idea of common sense facts discussed by Pepper (1942). Pepper writes that

> "Uncriticized, common sense facts are the sort of things we think of when we ordinarily read the daily papers or novels depicting the ordinary life of men or the

sort of things we see and hear and smell and feel as we walk along the street..." (Pepper, 1942, page 39).

Pepper holds that no cognition can sink lower than common sense, for when we completely give up trying to know anything, *then* is precisely when we know things in the commonsense way. In that lies the security of common sense, but common sense is also not secure in that the more we know it the less we like it. How do we know that our perceptual judgments, or rather common sense, represent the truth? Hookway (1985) proposes three tests.

1. Dismiss the percepts
2. Consult one's fellows
3. Make use of laws of nature (very fallible he confesses) to predict that if my percept has its cause in the real world, a certain experiment must have a certain result which in the absence of that cause would be a little surprising.

Tests number 2 and 3 parallels Pepper's concept of multiplicative and structural corroboration respectively.

6.5.3.1 Perceptual judgment and values

According to Peirce (Hookway, 1985), what we perceive is influenced by what we hold to be valuable. Peirce writes that

> "Our expectations and interests lead us to see things other than they really are - it takes a very special skill for a proof reader actually to see the letters we think ought to be there." (Hookway, 1985, page 164).

Evaluation

It seems there are differences between Peirce's perceptual judgment and the interpretive paradigm in that while the former sees commonsense facts as both particulars and generals,

the latter regards them as particulars. Furthermore, while the interpretive paradigm limits the objective of instrumental judgment (Vickers, 1968; 1995) to maintaining the status quo, perceptual judgment does not. Limiting the objective of instrumental judgment to maintaining the status quo is viewed as a weakness of the interpretive paradigm.

However, there seems to be no difference between Peirce's perceptual judgment and the concept of 'management judgment' discussed earlier. For instance, both seem not to argue that the objective of instrumental judgment should be limited to preserving order and cohesion. This is considered as their major strength. We shall therefore retain management judgment as a critical success factor.

6.5.4 Radical humanism

Another fundamental characteristic of society is the need to free itself from power associated with rule-governed systems that affect negatively effective interaction and management judgment. The need to free ourselves from power associated with rules is partly explained by the need to satisfy our emancipatory interest in the context of Habermas's taxonomy of human interests (Flood, 1994). Emancipatory interest brings to the fore, the need for ideological awareness in the society because there are forces that may prevent open and free interaction and discussion and hence, negatively affect the adequacy of knowledge creation. The underlying assumption of ideological awareness lies in the critical theory of the radical humanism paradigm, (Burrell *et al,* 1979). The critical theory stresses the need for individuals, to consciousness create and change the society in which they live. Burrell *et al* identify the pioneer work of critical theory as including that of Gramsci, Habermas, and the young Marx who build his work on the work of Hegel. Burrell *et al* cite the work of Gramsci as a truly 'critical theory'.

> "The philosophy of praxis, this truly 'critical theory', sought to introduce into the orthodox Marxism comprehension of and sympathy for an understanding of 'superstructural' factors within capitalist societies. Gramsci believed that power and domination in capitalism rested not only with the materially located means of

> coercion and oppression, but also within men's consciousness, through 'ideological hegemony'. The ruling class, it was maintained, always seeks to legitimate its power through the creation and perpetuation of a belief system which stresses the need for order, authority and discipline, and consciously attempts to emasculate protest and revolutionary potential" (Burrell *et al,* 1979, page 289).

According to Burrell *et al,* Gramsci believes that ideological hegemony can be eradicated only through ideological awareness; the society should be informed about what the causes and consequences of the status quo are. This work parallels that of Churchman (1968) on the notion of a "well informed public". Though Churchman holds that everybody should be given the authority and responsibility to make the important political decisions of today, yet he is skeptical about whether this is feasible, because of ideological hegemony maintained by those who control the mass media. He writes:

> "Now if we turn to some of the objections to this concept of a well informed public, we can begin by noting that certain individuals are in control of the mass media made available to the average citizen. These persons are the politicians themselves and the owners of various television, newspaper, and other types of communication companies. Since they control the mass media, these individuals are capable of directing the way in which the public pays attention to issues. The question therefore is whether those who control what is presented to the citizen are themselves well informed and whether they act on the basis of information or rather a desire to be leaders and controllers of public opinion." (Churchman, 1968, page 74).

In such instances, ideological awareness makes the public aware of who controls the mass media, what are his motives and to what extent are the public interests met. In the context of policy design Ulrich (1987) proposes Critical Systems Heuristics (CSH) as an approach for creating ideological awareness in society of presuppositions imbedded in social policy designs or plans. Building on Kant's synthetic *a priori* concepts, Ulrich develops a list of twelve boundary questions, which uncover issues that society needs to be aware of. Ulrich organizes the twelve boundary questions into four groups of boundary judgments, each group comprising three kinds of category.

The first group asks for the sources of motivation flowing into the design in question. Who contributes (ought to contribute) the necessary sense of direction and values? What purposes are served? The second group is to examine the sources of control built into a design. Who contributes (ought to) contribute the necessary means, resources and decision authority? Who (ought to) have the power to decide? The third group of questions traces the sources of expertise assumed to be adequate. Who contributes (ought to contribute) the necessary design skills and the necessary factual knowledge? Who (ought to) have the necessary know-how to do it? The last group helps reflect on the sources of legitimation to be considered. Who represents (ought to represent) the concerns of the affected? Who contributes the necessary sense of self-reflection and responsibility among the involved? By answering these questions, Ulrich believes, ideological awareness will be achieved and hence, the concerned society emancipated.

Radical humanism is perceived to correspond to theories of reality located in the subjective – change quadrant.

Evaluation

The emancipation of society through ideological awareness alone has been criticized. For instance, Jackson (1985) argues that it does not help us if we only reflect on the structural and material conditions that lead to some people having power over others. Jackson writes that

> "Ulrich's critical systems heuristics is critical in terms of the idealism of Kant, Hegel and Churchman but it is not critical in terms of historical materialism of Marx and the Frankfoot school sociologists. Ulrich's work allows us to reflect upon the ideas that enter into any social system design but it does not help us to reflect upon the material conditions that give rise to those ideas and which lead to certain ideas holding sway. Obviously an analysis conducted according to Ulrich's recommendations will help point to such material conditions. What it cannot do is provide an examination or explanation of the nature and development of these conditions." (Jackson, 1985, page 880 to 881).

According to Jackson, emancipation should also constitute the creation of awareness in society about the causal factors that led some individuals or ideas to dominate other individuals or ideas.

It is therefore apparent that critical theory, which advocates ideological awareness, though necessary, is not sufficient to enhance the total emancipation of society. It is for this reason that we turn to Marx's historical materialism to explore what enables some individuals in society to possess the authority and power, and hence, be in a position to maintain ideological hegemony.

6.5.5 Radical structuralism

Jackson (1985) identifies the need for providing explanations of the nature and development of the conditions that give rise to some individuals possess power over others. The need for examination of these conditions is based on the radical structuralism paradigm (Burrell *et al,* 1979).

Radical structuralism is build on historical materialism founded by the mature Marx in the second half of the nineteen century. Burrell *et al* write that Marx's methodology of society consists of two elements - the superstructure and the substructure. The substructure refers to the economic base of the society in which production plays a central role. One components of substructure is the mode of production, which can be a communal, feudalistic, capitalistic, socialist or communist. Another component is what Marx calls the means of production. These comprise technology used, land, capital and labour. Finally, we also have the relations of production, consisting of the bourgeoisie and the proletariat. Within each mode of production there are particular associations between the means and the relations of production. For instance, in the capitalist mode of production the bourgeoisie is not a producer, but owns the means of production; the proletariat who produce, does not own the means of production. Marx argues that this type of relations of

production enables the bourgeoisie to appropriate the surplus value produced, and thus exploit the proletariat.

Marx uses the term 'superstructure' to denote non-economic factors within the society such as the state, religion, art, literature, etc. The substructure determines the superstructure and the latter influences the former. Marx argues that under the capitalist mode of production when the various factors of the substructure and superstructure interact and come into play, they give rise to the creation of the concepts of totality, social structure, contradiction and crises. The notion of totality implies that it is crucial to study total social formations as a means of understanding the elements of a social system. It implies that an understanding of the nature of the whole must precede any understanding of the constituents of the parts, (Burrell *et al*, 1979). Within capitalism we have classes, or rather structures, made up of those appropriating the surplus value and those who do not. In understanding such structures one needs to take a total perspective, since structural systems are part of wider systems. The existence of structures creates contradiction between these structures, a contradiction within the superstructure itself and even more seriously, a contradiction between the various factors of the substructure and the superstructure. Again, in understanding these contradictions, one needs to take a total view. These contradictions cause what Marx calls cataclysmic crises characterized by the emergence of the dictatorship of the proletariat which would overthrow the society as a whole, i.e. according to Marx, replace capitalism with socialism.

The analysis of substructure, superstructure, totality, structure, contradiction and crises gives an explanation of how the material and structural conditions develop in favour of some individuals and enable them to occupy certain positions in the society. Once such individuals are in such positions, they then create ideological hegemony so as to perpetuate the status quo. The best way to emancipate a society is not only to create ideological awareness of the existence of such practices, but also to explore any historical conditions that paved the way for their development. We therefore need to rethink the nature of any existing institution, which is a breeding ground of ideological hegemony. The exploration

of historical conditions is therefore involved in tracing and removing conditions that allow some individuals to possess power over others.

In the context of the organization, Marx's mode of production raises issues related to the relationship existing between members of the organization (i.e. whether there is any coercion or conflict between them or not). The means of production brings up issues related to resources, and technology used. Marx's concept of relations of production raises the issue that in organizations there are different types of stakeholders with varying degrees of influence on resources, different levels of knowledge, and skills. The influence on resources and ownership of knowledge are both sources of power. The idea of superstructure brings to the fore the existence of factors other than the ownership of resources, or expertise that make certain stakeholders to have power over others and thus, different. For instance, regulatory bodies may have power over other stakeholders of the organization because of their authority and not due to the ownership of resources or expertise. Marx's concept of totality requires the consideration of all the above interacting issues in dealing with management problems.

Evaluation

Marx perceives material existence as primary, and ideological consciousness as its consequence and hence, secondary. Watson (1985) quotes Marx as follows

> "Does it require deep intuition to comprehend that man's ideas, views, and conception, in one word, man's consciousness, changes with every change in the conditions of his material existence, in his social relations and in his social life? What else does the history of ideas prove than that, intellectual production changes its character in proportion as material production is changed? The ruling ideas of each age have ever been the ideas of its ruling class." (Watson, 1985, page 54).

In the context of organization, the above view tends to place personal power at the helm of management intervention efforts. The view seems to hold that personal power influences ideological power and not the other way around. Though the view undermines the

importance of ideological power, it however, tends to emphasize the opinion that personal power can make or break any intervention efforts. Radical structuralism is made one of the critical success factors because of this view.

However, by undermining the importance of ideological consciousness, radical structuralism puts itself in a precarious situation. For instance, it would hold that change of the organization's ideology, which is mainly in form of organizational culture to suit the environment, is unlikely to produce material benefits to an organization. This perspective has been shown to be false by advocates of performance improvement through transformation of organizational culture, particularly Schein (1993); Schein (1988); Brown (1995). Radical structuralism therefore, though necessary, is not sufficient in guiding management intervention efforts.

Radical structuralism is based on a theory of reality located in the objective – change quadrant.

6.6 Towards a theory for management intervention

Burrell *et al* (1979) state that the four sociological paradigms are based on different underlying theories, so one cannot operate in more than one paradigm at the same time. They write that

> "....the four paradigms are mutually exclusive. They offer alternative views of social reality, and to understand the nature of all four is to understand four different views of society. They offer different ways of seeing. A synthesis is not possible, since in their pure forms they are contradictory, being based on at least one set of opposing meta-theoretical assumptions. They are alternatives, in the sense that one can operate in different paradigms sequentially over time, but mutually exclusive, in the sense that one cannot operate in more than one paradigm at any given point in time, since in accepting the assumptions of one, we defy the assumptions of all the others." (Burrell *et al*, 1979, page 25).

Though the view that in the act of inquiry we can operate in different paradigms sequentially over time is acknowledged by Burrell *et al* (1979), they however, do not propose how we should move sequentially around the paradigms. It is proposed that in the knowledge creation process, one should move around the paradigms as indicated in figure 6.2.

At a particular moment during the process of inquiry, our thinking and actions are based on the functionalist paradigm. As we proceed, our thinking and actions tend to be guided by the management paradigm. At a later stage, our thinking and actions become radically humanistic in nature, and as we proceed further, the base for our thinking and actions becomes radical structuralist. Later it becomes guided by the management judgment paradigm. Since inquiry is a continuous process, the operation around the paradigms is also never ending. In the context of management intervention the adaptation of figure 6.2 yields figure 6.3.

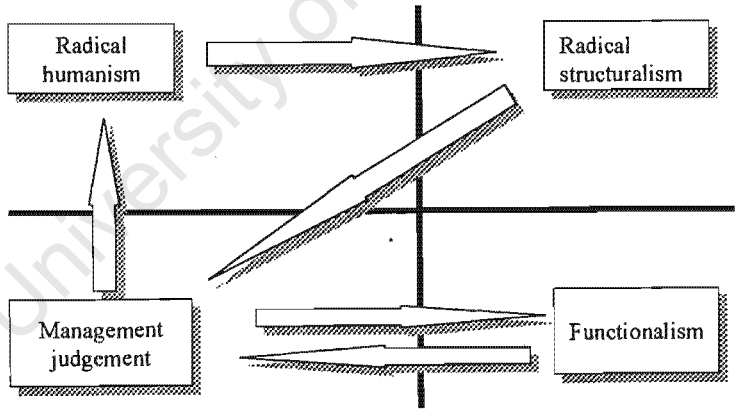

Figure 6.2. Sequential operation around the paradigms.

The functionalist paradigm is represented by the act of interaction. The management judgment paradigm is represented by the acts of appreciation, pre-regulation, and

regulation. Radical humanism is represented by the act of ideological awareness. Finally, radical structuralism is represented by the exploration of historical conditions.

The five phases of inquiry shown in figure 6.3 constitute a theory of management intervention. This theory suggests that in the process of intervention stakeholders must first interact.

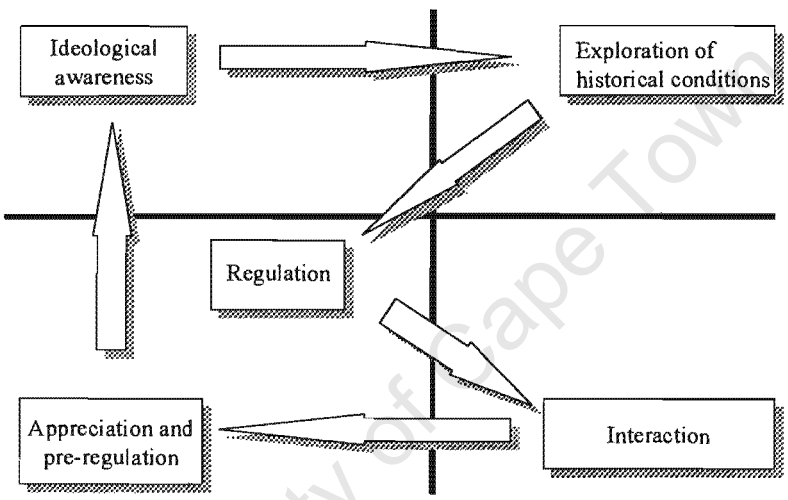

Figure 6.3. A framework for management intervention.

The intervention framework shown in figure 6.3 works in the following manner. Before any intervention activity commences, there must be interaction of stakeholders. The objective of interaction is to create the requisite variety (Ashby, 1956) to cope with the complexity of the management problem. Once the act of interaction is accomplished, stakeholders appreciate the problem situation and identify regulative actions. The act of appreciation and pre - regulation include reality judgment, value judgment of the problem situation and the identification of regulative actions to be undertaken (Vickers, 1968; 1995).

Effective interaction, appreciation and pre - regulation can be achieved only if the stakeholders are ideologically aware of the power related forces that can prevent effective

execution of these phases. Being aware of such forces, though necessary is not sufficient. The stakeholders must be able to provide an explanation of the historical conditions that lead such forces to come into existence (Jackson, 1985). Once the historical conditions are explored, regulative action can be taken. This in turn will require more interaction or even interaction of a different kind. The process of intervention is continuous and never ending.

The theory of intervention is therefore composed of four critical success factors. They include interaction, management judgment, ideological awareness and exploration of historical conditions. Note that management judgment is made up of two sub factors i.e. appreciation and pre regulation, and regulation.

6.6.1 Structural characteristics of the critical success factors

The four Critical Success Factors (CSFs) are analogous to Pepper's categories of a root metaphor. According to Pepper, the categories are the structural characteristics of the root metaphor. Having identified the categories (in this case the CSFs), we need to further break them down into a list of sub categories. Here we adopt an operational view of concepts (Bridgman, 1992), to produce such a list. Regarding the operational view of concepts, Bridgman writes that

> "We may illustrate by considering the concept of length, what do we mean by the length of an object? To find the length of an object we have to perform certain physical operations. The concept of length is therefore fixed when the operations by which length is measured are fixed that is, the concept of length involves as much as and nothing more than a set of operations."
> (Bridgman, 1992, page 58 - 59)

Bridgman holds that the set of operations can be physical or/and mental. Now, if we adapt an operational view to concepts in developing a list of the sub categories we need to answer the question: *What set of operations need to take place so that we can be certain of the existence of a given CSF, or rather, category?* For instance, regarding the concept 'interaction' we only need to consider a set of operations that might have practical bearings

on it; that might render interaction possible in practice, and a list of such causes is essentially a list of the sub categories. Taking an operational view, the following list of sub factors is obtained.

Interaction

In order for interaction to take place, there must be:

- People to interact and hence, the need for participation
- A structure to guide the interaction process
- A basis for interaction.

Management Judgment

In order for management judgment to happen, there must be:

- An appreciation of the characteristics of management problems
- An identification of measures to deal with the characteristics
- Implementation of the measures

Ideological awareness

In order for ideological awareness to occur, there must be:

- An identification of personal power - related factors that inhibit effective interaction and management judgment
- An exploration of the adequacy of any assumptions that went into the process of interaction and management judgment

Exploration of historical conditions

In order for the exploration of historical conditions to take place, there must be:

- An identification of historical conditions that led to the existence of personal power - related characteristics that inhibit effective interaction and management judgment
- An exploration of historical conditions that led the assumptions which went into the process of creating interaction and management judgment to hold sway
- An elimination of such historical conditions.

6.7 The metaphysics and ethics of the theory for management intervention

The framework for the management intervention theory as shown in figure 6.4 suggests that one has to move continuously around the four quadrants of theories of reality shown in figure 5.1 on page 143 in chapter five. For instance, when management judgment is undertaken one adopts a theory of reality that can be located in the subjective – static quadrant. When one move into the creation of ideological awareness, he or she becomes guided by a theory of reality that can be located in the subjective – change quadrant. When one is undertaking the exploration of historical conditions, his or her theory of reality can be located in the objective – change quadrant. Finally, during the interaction phase, a theory of reality that is located in objective – static is adopted. The theory of management intervention adopts different kinds of theories of reality depending on the context.

As pointed out earlier, the kind of ethical theory one adopts is influenced by the kind of theory of reality one subscribes to. Hence, by the same token, in the act of management judgment one is guided by theories of ethics found in the subjective – static quadrant, and so on.

6.8 Conclusion

The objective of this chapter was to develop a theory for management intervention that is based on the relevance and reliability criteria. The need for cognitive and ethical adequacy of the relevance criterion enabled the identification of the required social theories, which

together produced a coherent and consistent theory for management intervention. The developed theory is in terms of four interrelated critical success factors; interaction, management judgment, ideological awareness and exploration of historical conditions has been developed.

In Burrell and Morgan terms, the four critical success factors constituting a theory for management intervention, are high range social theories. Since these critical success factors in their totality, are cognitively and ethically adequate, they can deal with all the characteristics of business management problems.

The chapter concludes that if these critical success factors are used in designing an intervention methodology, the methodology is also likely to be cognitively and ethically adequate. This is going to be the subject of the next chapter.

Chapter Seven. An Inquiry Based Intervention Methodology for Business Management Problems

> Every text is not only a perspective on a reality, but says something about the reality from this perspective. What it says about the reality will have some kind of order or structure or form or connectedness or argument or method. The way in which the text orders the real can be called its *method*, from the Greek *methodos*, derived from *meta*, following, plus *hodos*, way, following a way. (Watson, 1985, page 71).

7.1 Introduction

The last condition of the management intervention framework adopted in this thesis requires that in order to design an intervention methodology with a high possibility of producing successful results, the process must be guided by the theory for management intervention developed in chapter six. This chapter addresses this condition by designing the Inquiry Based Intervention Methodology (IBIM) from the four critical success factors developed in chapter six.

Although most writers acknowledge the need to base the design of intervention methodologies on certain philosophies for instance, see Checkland (1981; 1995), Flood *et al* (1993), Jackson (1995), very few have shown how this can be systematically undertaken.

It seems that it is only Flood *et al* (1993) who have attempted to deal with this problem. In designing the IBIM, we shall therefore adopt their approach of moving from philosophy to principles of methodology and from principles to the methodology itself. Such a systematic approach ensures that the methodology conforms to its philosophy.

The chapter starts by taking a second look at the theory for management intervention discussed in chapter six. Adopting the aforementioned approach suggested by Flood *et al* (1993), the chapter identifies the various phases of the IBIM. Since the IBIM is

systemic in nature, a comparison between this methodology and other leading systemic methodologies is also undertaken. In particular, a comparison is made between the IBIM and Total Systems Intervention methodology (Flood *et al,* 1993), and between IBIM and Local Systems Intervention methodology (Flood, 1996).

The chapter concludes that since the IBIM conforms to a relatively adequate theory, it is likely to be effective in dealing with business management problems.

7.2 A second look at the theory of intervention

In chapter six it was established that the theory for management intervention is made up of four main stages. The stages include interaction, management judgment, ideological awareness, and exploration of historical conditions. The four stages which, were referred to, as critical success factors are analogous to the categories of a root metaphor (Pepper, 1942). According to Pepper, categories are structural characteristics of a root metaphor and are normally used as basic concepts of description and explanation of such a root metaphor. The critical success factors can be perceived to be the structural characteristics of management intervention efforts. The critical success factors identified in chapter six are again reproduced in this section.

7.2.1 A brief outline of the categories/critical success factors

Interaction

In the act of management intervention, relevant stakeholders interact in order to collaborate. Collaboration is vital in order to attain the requisite variety of stakeholders so that they can cope with the complexity of management problem being tackled. In order for interaction to take place, it was shown that there must be:

- People to interact and hence, the need for participation
- A structure to guide the interaction process
- A basis for interaction.

Interaction makes management judgment possible.

Management judgment

The act of management judgment comprises Vickers's concept of reality judgment, value judgment and/or without instrumental judgment. For management judgment to take place there must be

- An appreciation of the characteristics of management problems
- An identification of measures or rather a list of actions to deal with the characteristics
- Implementation of the measures

Management judgment is judgment regarding organic and cultural characteristics of a management problem. Hence, management judgment requires

- Acknowledging the role of the environment as an important variable to be considered in the intervention.
- Acknowledging that there is interaction between the various variables that are relevant to the problem
- Acknowledging the role of feedback
- Exploring any misperceptions of feedback.
- Acknowledging the need to manage uncertainty
- Acknowledge the fact that there are various views regarding the above issues
- Acknowledge the significance of these views on the success of intervention.

As mentioned before, the act of management judgment is only possible if there is interaction. Management judgment creates is a prerequisite to the creation of ideological awareness.

Creation of ideological awareness

The theory for management intervention holds that in the process of intervention the relevant stakeholders must reflect upon the ideas that are held by them or others, and

the consequences of such ideas to the effectiveness of intervention. The stakeholders must be alerted to the possibility that both personal and ideological power can be misused to push through certain values against the wills of those who do not have power. All should be made aware that such abuse would impact negatively on the effectiveness of intervention. In order for ideological awareness to take place, there must be:

- An identification of personal power related factors that inhibit effective interaction and management judgment
- An exploration of the adequacy of any assumptions that went into the process of interaction and management judgment.

Exploration of historical conditions

The theory of intervention maintains that creating ideological awareness is necessary, but not sufficient to ensure effective intervention. The stakeholders must reflect upon the historical conditions that engender eager acceptance by some stakeholders while others holding sway. Historical conditions can be related to material, structural, political, religion, etc. Exploring the historical conditions results in effective interaction. In order for the exploration of historical conditions to take place, there must be:

- An identification of historical conditions that led to the existence of personal power related characteristics that inhibit effective interaction, management judgment and creation of ideological awareness
- An exploration of historical conditions that led the assumptions which went into the process of interaction, management, and creation of ideological awareness judgment that hold sway
- An elimination of such historical conditions.

7.3 From theory for management intervention to the methodology

While the categories stipulate the underlying philosophy of the inquiry based intervention methodology, the sub-categories specify its underlying principles. According to Flood (1994), the underlying philosophy of a methodology informs us as to what the world looks like when one adopts such a methodology. The underlying principles on the other hand, propose the kinds of actions we should take if such a worldview is adopted. In our case the underlying philosophy of the IBIM (referred in this thesis as underlying theory) informs us of what the world looks like when one adopts such a methodology, and the underlying principles outline the kinds of action we should take if such a worldview is adopted

7.3.1 The underlying theory of the IBIM

The underlying theory of the IBIM comprises four components:

- The first is the need to promote interaction between all the relevant stakeholders who will be affected once the methodology has been implemented. Interaction is a prerequisite for corroboration and collaboration, which are essential in dealing with the characteristics of the management problem.
- The second is anchored in the belief that the act of management judgment, which includes the act of appreciation with or without the act of instrumental judgment (Vickers, 1998), is essential for dealing with management problems.
- The third is based on the need to acknowledge the consequences of coercion between stakeholders and/or between assumptions on the effectiveness of intervention. The objective is to identify any stumbling blocks to fruitful stakeholder interaction and management judgment in the process of intervention.
- The fourth arises from the need to identify influencing factors that make ideological awareness necessary. The thrust here is to enable stakeholders to suggest recommendations that can prevent coercion either between individuals or between assumptions, and so, promote effective interaction and management judgment.

7.3.1.1 The underlying principles of the IBIM

- The need for relevant stakeholders to interact translates into the need for stakeholder participation and hence, stakeholder development as one of the objectives of intervention. According to Ackoff (1994), a stakeholder is a person who will be directly affected by the results of the implementation of the methodology. Ackoff (1994) defines development, as an "ability and desire to satisfy one's own needs and legitimate desires and those of others". Ackoff holds that stakeholder development is possible only if the stakeholders participate and interact with others in making decisions. He writes that

> "Recall that learning is the process of development. There is no better way to learn how to satisfy one's own needs and legitimate desires and those of others than by engaging with others in making decisions and evaluating their consequences." (Ackoff, 1994, page 56).

Ackoff maintains that interaction is a key factor in stakeholder development. This brings to the fore the need to integrate action learning into the methodology because action learning promotes stakeholder development. This implies that the methodology should be organized around the tenets of action learning and the action learning set will provide the required structure to facilitate stakeholder participation. Apart from emphasizing the need for participation and organization structure, interaction also emphasizes the necessity of a basis, or reason, for interaction.

- The need for management judgment leads to the need to incorporate scenario construction (Porter, 1980); (Schoemaker, 1992; 1995), into the methodology. This will help stakeholders deal with the environmental factors and internal organizational variables. Scenario construction will also help stakeholders manage uncertainty. The incorporation of qualitative system dynamics (Senge, 1990a); (Sterman *et al*, 1994); (Repenning,, 1996), into the methodology will help stakeholders uncover any misperceptions of feedback emanating from the act of intervention. The need for management judgment also requires taking a Total Process Approach (TPA) to ensure that technical and organizational complexity (Sterman *et al*, 1994) of new product development process and the existing product

process are at par. This also facilitates the prevention of misperceptions of feedback. Furthermore, the need for management judgment leads to the need for identification of measures that can produce intervention. This culminates in the design of intervention projects i.e. the identification of processes that make implementation of the projects possible. Finally, the need for management judgment leads to the implementation of the designed intervention projects.

- The need to acknowledge the consequences of coercion requires to incorporate into the methodology a mechanism for identifying all the factors whether people, or knowledge related that may negatively affect the effectiveness of interaction and management judgment. Such a mechanism must be able to question the effect of power held by certain stakeholders and the effect of dominant assumptions (also held by the stakeholders), on the effectiveness of intervention efforts. The mechanism should be inspired by, but not limited to, Ulrich's boundary questions (Ulrich, 1987).
- Finally, the need to identify the causal factors that make ideological awareness a necessity implies that the methodology must facilitate the stakeholders in identifying such factors, and propose ways of eliminating them. Again, these factors can be related to the misuse of power by some stakeholders, or to the adequacy of dominant assumptions held by stakeholders.

7.4 Phases of the methodology

The inquiry based intervention methodology is made up of nine phases, as shown in figure 7.1. As mentioned before, the methodology draws from the way in which action learning programmes are implemented. Formation of action learning teams should therefore be the first phase of the methodology. Once this is done the remaining eight phases of the methodology can be undertaken. The second phase comprises scenario construction and the identification of key competing capabilities. Identification of intervention projects and prediction constitute the third and fourth phase respectively. The fifth phase consists of designing intervention projects. Identification of the effective interaction and management judgment inhibitors is undertaken in phase six. In phase seven influencing factors for the inhibitors are identified. Implementation and

evaluation of the consequences of the intervention efforts are done in phase eight and nine respectively. In the context of the categories and hence, the underlying philosophy of the methodology, the need for interaction is captured by phase one. The need for the act of management judgment is realized in phase two, three, four, five, eight and nine; scenario construction and the identification of competing capabilities, the identification of intervention projects, prediction, design of intervention projects, implementation and evaluation respectively.

Phase six and seven represent the creation of ideological awareness and the exploration of historical conditions respectively. A detailed presentation of the nine phases is given below.

7.4.1 The first phase: Formation of a meta set

In the first phase a peer member action learning team is formed. The size of the team must be between six to eight participants (Warfield, 1976). We shall call such a team a meta set. This phase is built on the work of Revans (1982); Weinstein (1995). Note that members of the meta set work on their individual projects in phase five and eight. In the remaining phases the meta set should work together, i.e. as if they are working on one project.

7.4.2 The second phase: Scenario construction and the identification of key competing capabilities.

The underlying assumption of this phase is that the influence of the environment and the internal design of the organization must both be considered when one is establishing the kind of intervention needed. This is also in line with the proposition that complex systems like organizations are open to the environment. In order to produce an adequate list of guidelines in this phase, the author has been influenced by the work of Adrich (1979) on the environment selection criteria and the work of Trist (1983) on referent organizations and the development of inter organizational domains. The author has also been influenced by the work of Grant (1991) and Wernerfelt (1984)

on the resource based view of the firm, the work of Kast *et al* (1973) on contingency theory, and the work of Schoemaker (1992; 1995) and Porter (1980) on scenario analysis.

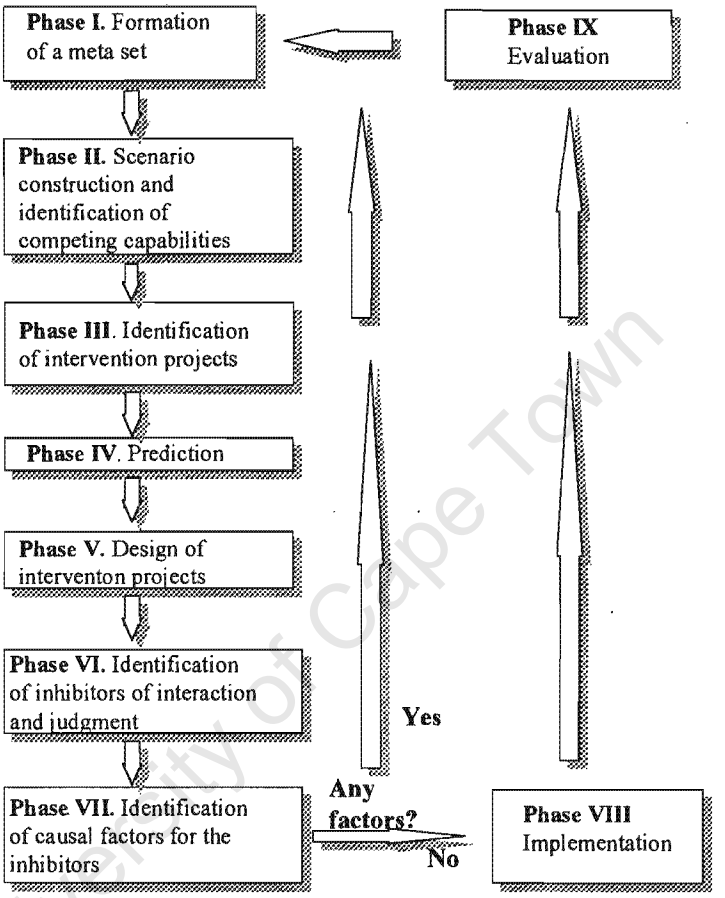

Figure 7.1 The Inquiry Based Intervention Methodology (IBIM)

The second phase is made up of three stages. These include scenario construction, identification of competing segments, and the identification of key competing capabilities. These stages are discussed next.

7.4.2.1 Stage one. Undertake scenario construction

In this stage the meta set and relevant stakeholders from outside the organization should all participate in the scenario construction exercise. It is also advisable to take

into consideration the views of the customers, stockholders, and regulatory bodies. This stage is made up of the following steps.

Establish time frame and scope

The team should establish what factors affect the choice of time frame. Schoemaker (1992) argues that factors such as changes in technology, product life cycles, competitors' time frames, investment intensity, and political factors may be considered in arriving at the appropriate time frame. There are three types of scope; product, technology, and geographical scope. Product scope focuses on the type of product(s) the organisation is offering, or might offer, in the specified time frame. Technology scope is the type of technology to be pursued by the organization, and geographical scope is the identification of the kind of markets, whether local or international in which the organization is or plans to be.

Identify Stakeholders

All parties affected by the decisions of the organisation, especially if they can flex their muscles should be identified. Stakeholders may include competitors, customers, suppliers, regulatory bodies, retailers and distributors, investors, or employees.

Identifying corporate goals

In assessing the current performance of the organization and what is happening in the environment, the team should be able to compile a list of goals that they think should the organization should pursue. Since the goals are related to the vision and mission statements, sometimes, they may sometimes require review if there is much divergence between these statements and the envisaged goals.

Identify basic trends

The existing trends and conditions that will significantly affect the industry's future should be established. The corresponding degree of impact (whether positive, negative or neutral to the health of the organization) should be identified and recorded. The benchmark is the current performance of the organization. Causal loop diagrams may be used to establish the relationships between trends. Unknown trends, those on which team members fail to reach consensus, should be treated as uncertainties. Trends should cover such areas as economic, political, societal, and technological, and also the degree of competition in the industry.

Identify uncertainties

Uncertainties are trends the occurrence of which is difficult to establish with certainty. What the team can do is to assign measures such as low, high, very high or weak, moderate, and/or strong, to signify the intensity of their occurrence. In common with basic trends, uncertainties can prevail in areas such as the economic, political, societal, technological, or in the context of product demand. The team should also identify their corresponding nature of impact on the performance of the organisation. A positive, no impact or negative impact categorisation may suffice. Again, the benchmark is the current performance of the organization. Causal loop diagrams may also be used to show the relationships between uncertainties if there are any.

Construct Scenarios.

From the trends and uncertainties, possible scenarios, or rather, stories can be constructed. This can be done by classifying in one group all basic trends and uncertainties that have similar impacts on the performance of the organization. For instance, all positive impact basic trends and uncertainties can be placed in one group, and all negative impact basic trends and uncertainties in another, and so on. Scenarios must be checked for internal consistence. The causal loop diagrams of the basic trends and uncertainties can facilitate the consistence validation exercise.

7.4.2.2 Stage Two. Identify strategic segments

Strategic segments are battlefields in which, the organization is, or might be, competing. Strategic segments signify the nature of customers to be served. They may include for instance, retailers, wholesalers or individual customers.

7.4.2.3 Stage Three. Identify key competing capabilities

In this stage, capabilities required in a given scenario - strategic segment setting are identified and recorded. It may be helpful if the relative importance of the capabilities in a given scenario - strategic segment setting is captured as well. Table 7.1 can be used. Capabilities should be recorded in the corresponding cells of the table. There is a distinction between resources and capabilities. Grant (1991) writes that resources are inputs into the process and they are the basic units of analysis. Grant describes resources as including items such as capital equipment, skills of individual employees, patents, brand names, finance, etc.

Wernerfelt (1984) defines a firm's resources as those tangible and intangible assets that are tied (owned or controlled) semi-permanently to the firm. They include brand names, in-house knowledge of technology, trade contracts, machinery, efficient procedures, capital, etc. A capability on the other hand, is the capacity for a group of resources to perform some task or activity.

Table 7.1. The required organizational capabilities

Strategic segment	**Scenario**		
	Scenario 1	Scenario 2	Scenario n
Segment 1	Capabilities	Capabilities	Capabilities
Segment 2	Capabilities	-do-	-do-
Segment n	Capabilities	-do-	-do-

While resources are the source of the firm's capabilities, the latter are the main source of competitive advantage. Capabilities refer to a firm's capacity to deploy resources to effect a desired end. They are information based, *processes* or rather *activities* that are firm specific and are developed over time through complex interactions among the firm's resources.

Snow *et al* (1980) argue that a firm can posses distinctive capabilities in general management, financial management, marketing/selling, market research, product research and development, engineering, production, distribution and legal affairs. The identification of key competing capabilities is done in two steps. In the first step, the capabilities required in a given scenario - strategic segment setting are identified and recorded. The required capabilities may be inherent in the organization or may not. The only crucial thing at this stage is that they are important. In identifying the capabilities one should ask a question such as: *If this scenario turns out to be true as far as this competing segment is concerned, what capabilities are needed so that the organizational goals can be achieved*? Capabilities should be recorded in the corresponding cells of table 7.1.In the second step the team should identify a list of capabilities called *key capabilities* that feature most in the cells of table 7.1

7.4.3 The third phase: Identification of the intervention projects required

Phase three is made up of two stages namely, gap appraisal, and the identification of intervention projects.

7.4.3.1 Stage One. Gap appraisal

In this stage the team should establish the gap between what the organization has, and what it ought to have, in terms of key capabilities. Two possibilities may emerge here i.e. there might be some key capabilities that the organization lacks, or the organization might posses all the key capabilities. If the organization does not have some of the key capabilities, then the strategic question will focus on how to develop them. Otherwise

the strategic question will center on how to apply them. In either case the answer should lead to the kind of strategic actions the organization should adopt.

7.4.3.2 Stage Two. Identification of intervention projects

In this stage, the team identifies intervention projects that can help implement the intervention actions identified in stage one.

7.4.4 The Fourth phase: Prediction

In this phase the team first takes a total process approach and second, uses the grand influence diagram and proceeds to apply a qualitative system dynamics approach (Senge, 1990a), to ensure that

- There are no misperceptions of feedback that might result as a consequence of implementing the intervention projects.
- Those projects that cause the misperceptions of feedback are not implemented.
- The performance of the organization will be improved

Adopting a total process approach requires perceiving existing processes as connected islands, similar to the way new product development process is viewed. This approach is meant to prevent any misperceptions of feedback because, all organizational processes will have the same level of technical and organizational complexity (Sterman *et al,* 1994).

A qualitative system dynamics methodology is essentially a grand influence diagram of functions that comprise the consequences of implementing the intervention projects. The preparation of grand influence diagrams is done in the following manner: First, the meta set should uncover the functions of implementing each project. To facilitate the uncovering of benefits, the meta set should answer the question: *What kind of benefits can be realized if this project is implemented?* For each project, a list of functions should be established. Second, once the list of functions is made available, the meta set must then develop an influence diagram which indicates the relationship between the

functions for each intervention projects. Third, the meta set should develop a grand influence diagram for functions of all the identified project. Fourth, the meta set must link this grand influence diagram to the corporate goals identified in the scenario construction exercise. Finally, prediction is undertaken and those functions and hence projects, which negatively affect the corporate goals, are identified and removed from the list of projects to be implemented.

The use of qualitative rather than quantitative systems dynamics is justified in the exploration of misperceptions of feedback because we are interested with patterns of behaviour of the values of the relevant variables including measures of performance. Senge (1990a) uses qualitative systems dynamics for this reason. On the other hand, Masuch (1985) uses the concept of vicious circles (which is analogous to qualitative systems dynamics) to explore misperceptions of feedback. Quantitative systems dynamics would be necessary if we were interested with the absolute values of the variables.

7.4.5 The fifth phase: Design of intervention projects

In designing intervention projects, the following activities must be undertaken by the members of the meta set.

- Identification of a structure for implementing the projects. This will also require linking such a structure to the meta set
- Identification of the processes for implementation
- Identification of evaluation criteria
- Preparation of the schedule for implementation.

7.4.6 The sixth phase: Identification of the inhibitors of the effective execution of the above phases

The existence of coercion can render the execution of the above phases ineffective. Moreover, adopting inadequate assumptions, theories, etc. in the process of intervention can also lead to ineffective intervention. In this phase, the meta set must

therefore identify any factors that, they think, have inhibited the formation of a meta set, scenario construction, the identification of competing segments, the identification of key competing capabilities, gap appraisal, the identification of intervention projects, prediction and the design of intervention projects. The following questions can help to uncover such factors:

Questions that address what took place

1) Who selected the participants?
2) Who were the participants?
3) How did they work?
4) What assumptions were made by them?
5) What expertise that is relevant to the intervention process do the participants possess?
6) What authority did the participants possess?
7) What resources did the participants possess?
8) What guaranteed the ownership of such expertise, authority and resources?

Questions that address what should have taken place

1) Who should have selected the participants?
2) Who should have been the participants?
3) How should have the participants worked?
4) What assumptions should have been made by the participants?
5) What expertise relevant to the intervention process should have been possessed by the participants?
6) What authority should have been possessed by the participants?
7) What resources should have been owned by the participants?
8) What should have guaranteed the ownership of such expertise, authority and resources?

In each case the first four questions address issues related to ideological power; the last four questions focus on issues related to personal power. Identification of inhibitors can be achieved by comparing the answers given to the questions that address what took place and those which focus on what should have taken place. Once the factors have been identified, the meta set must then inform itself of the influence of these factors on the effectiveness of the designed intervention projects.

7.4.7 The seventh phase: Identification of the causal factors for the inhibitors

In this phase the meta set should identify the conditions that have led to the factors identified in phase six to develop. The meta set must also propose ways of eliminating these conditions. In figure 7.1 it is shown that if the meta set does not find any inhibitors, then they must proceed to phase eight. Otherwise, the exercise must repeated once the causal factors for the inhibitors have been eliminated.

7.4.8 The Eight phase: Implementation

Once intervention projects are designed, they must then be implemented according to the recommendations given in the fifth phase.

7.4.9 The Ninth phase: Evaluation

In this phase, the intervention efforts are evaluated according to the criteria identified in the fifth phase.

7.5 The IBIM and Total Systems Intervention (TSI)

7.5.1 Flood and Jackson dichotomy of problem contexts

Flood *et al* (1993) state that it is useful to group problem contexts according to two dimensions: systems and participants. They view systems forming a 'continuum of systems types' classification. At one end of the continuum simple systems can be found and, at the other end lie complex systems. Flood *et al* (1993) hold that simple systems have the following characteristics:

- A small number of elements
- Few interactions between the elements
- Attributes of the elements are predetermined
- Interaction between elements is highly organized
- Well defined laws govern behaviour
- The system does not evolve over time
- Sub systems do not pursue their own goals
- The system is unaffected by behavioural influences
- The system is largely closed to the environment.

Complex systems have the following characteristics:

- A large number of elements
- Many interactions between the elements
- Attributes of the elements are not predetermined
- Interaction between elements is loosely organized
- They are probabilistic in their behaviour
- The system evolves over time
- Sub systems are purposeful and generate their own goals
- The system is subject to behavioural influences
- The system is largely open to the environment.

In the context of management problems, the Flood *et al* (1993) understanding of what a "complex system" is, captures only the organic and cultural characteristics of management problems. Flood *et al* (1993) identify three participant dimensions; unitary, pluralist, and coercive dimensions. In a unitary dimension:

- The participants share common interests
- Their values and beliefs are highly compatible
- They largely agree upon ends and means
- They all participate in decision making
- They act in accordance with agreed objectives.

In a pluralist state:

- The participants have a basic compatibility of interest
- Their values and beliefs diverge to some extent
- They do not necessarily agree upon ends and means, but compromise is possible
- They all participate in decision making
- They act in accordance with agreed objectives.

In a coercive situation:

- The participants do not share common interests
- Their values and beliefs are likely to conflict
- They do not agree upon ends and means, and genuine compromise is not possible
- Some coerce others to accept decisions.

Based on the two dimensions, Flood *et al* (1993) identify six problem contexts namely:

- Simple unitary
- Complex unitary
- Simple pluralist
- Complex pluralist
- Simple coercive
- Complex coercive

7.5.2 A brief outline of TSI

Flood *et al* (1993) write that TSI represents a new approach to planning, designing, problem solving and evaluation. They further state that the process employs a range of systems metaphors to encourage creative thinking about organizations and the difficult issues that managers have to confront. The underlying philosophy of TSI is constructed on the theory of Critical System Thinking (CST) (Flood, 1994). CST .is based on Habermas's theory of knowledge constitutive interests (Flood *et al,* 1993) and on Foucalt's logic (Jackson, 1994).

7.5.2.1 What is Critical Systems Thinking?

Flood (1994) states that CST has been strongly influenced by the work of Habermas on the theory of knowledge constitutive interests. Flood writes that humans in pursuit of knowledge are normally, driven by three cognitive interests, which are anthropologically based, fundamental and interrelated. The interests include an interest in managing interacting processes using methods of prediction and control, an interest in the relationships between human interpretations of actions and activities, and an interest in power associated with rule governed systems that affect people's actions and interpretations i.e. technical, practical and emancipatory interest respectively. Flood holds that the interests are interrelated because the existence of power and coercion may prevent free and fair interpretations of phenomena, which in turn might threaten the effective management of interacting processes using the methods of prediction and control.

Based on these interests, one can argue that management problems call for the management of interacting processes using methods of prediction and control. They call for interaction between relevant stakeholders so as to create mutual understanding between them, and they also call for the emancipation of man from power associated with rule governed systems that affect both the technical, and the practical, interest.

7.5.2.2 The philosophy of TSI

Since the three knowledge constitutive interests are independent, systemic methods that address the individual, interests should complement each other. They write that complementarism offers some guidance, so that each systemic method is put to work only on problem contexts for which it is the most suitable. Flood *et al* (1993) write that hard and cybernetic systems approaches such Systems Dynamics and the Viable System Methodology, can support the technical interest; soft methodologies such as the Soft Systems Methodology the practical interest; and critical systems heuristics (Ulrich, 1987), the emancipatory interest. *Complementarism* is therefore the first underlying philosophy of the TSI. Also, Flood *et al* (1993) point out that there is a relationship between the type of problem context and the kind of method to be used and hence, the nature of constitutive interest served.

The second underlying philosophy of TSI is the need to create *sociological awareness*. This requires the identification of the strengths and weaknesses of various methodologies and the examination of assumptions, values that enter system designs. The need to create sociological awareness also calls for critical reflection i.e., to assist stakeholders reflect upon the relation between different societal interests, and upon the dominance of different theories and methods.

The last underlying philosophy of TSI emphasizes the need for *human well being and emancipation*.

7.5.2.3 The principles of TSI

According to Flood *et al* (1993), the fundamental principles of TSI are as follows:

- Organizations are too complicated to understand using one management methodology
- Organizations, their strategies and the difficulties they face should be investigated by means of a range of systems methods

- Different systems metaphors and methodologies can be used in a complementary way to address different aspects of management problems
- Strengths and weaknesses of different systems methodologies should be appreciated and related to the problem contexts they are set to intervene

7.5.2.4 The phases of TSI

The phases of TSI include creativity, choice and implementation (Flood *et al,* 1993). The authors write that the creativity phase helps managers think creatively about the nature of problems they are about to deal with. In particular, the following questions are asked.

- Which metaphors reflect current thinking about organizational strategies, structures, and control and information systems?
- Which alternative metaphors might capture better what more desirably could be achieved with this organization?
- Which metaphors make sense of this organization's difficulties and concerns?

The outcome of the creativity phase is a dominant metaphor, and hence methodology, to be used in tackling the problem.

Flood *et al* (1993) argue that the task during the choice phase, is to choose an appropriate intervention methodology, or set of methodologies, to suit the problem context identified in the creativity phase. The task during the implementation phase, is to employ a particular systems methodology (or methodologies) to produce specific proposals for change.

7.5.3 Dissimilarities between IBIM and TSI

- Although the TSI emphasizes the need for interaction, management judgment and ideological awareness, it does not acknowledge the need for exploration of historical conditions. IBIM emphasizes all four critical success factors.

- In the process of intervention using TSI, particularly during the creativity and the choice phase depending on the nature of the problem, it is possible to exclude some of the critical success factors. This is against the philosophy of IBIM, which asserts that in the process of intervention, irrespective of the nature of the problem, all the critical success factors must be addressed.
- As mentioned by Midgley (1996), the philosophy of TSI is not fully translated into its methodology. This is due to the fact that the notion of liberating knowledge, which is underscored by the emancipative interest, is not translated into the TSI methodology; particularly in non-coercive problem contexts. With the IBIM, this is not the case.

Apart from the above dissimilarities, the concept of paradigm incommensurability (Flood and Romm, 1996), which complementarism as a philosophy of TSI is based, has some relevance to the IBIM. According to Flood *et al*, (1996) paradigm incommensurability is opposed to isolationism and empiricism, which both favour one set of theoretical and methodological premise. Isolationism occurs when a single methodology or theory is used in all problem solving circumstances. According to Flood *et al* (1996) the problem with this approach is lack of variety. Societies and other forms of organization are far too rich for serious practitioners to remain content with one methodology or theory. Imperialists are like isolationists except that they recognize there are ideas to be taken into account from other theories. They patch up their ideas by annexing ideas from other theories or methodologies. Imperialism also reduces theoretical diversity to one.

On the other hand complementarism is an attempt to preserve diversity in theory and methodology. Flood *et al* (1996) argue that preservation maintains diversity enhancing chances of effectively dealing with great complexity in organizational and societal affairs. Complementarism is based on paradigm incommensurability, which holds that theories are different and should not be compared. Hence, theories and methodologies should be adopted as they there in solving problems. Paradigm incommensurability is also advocated by the IBIM theory. The IBIM theory is made up of four different theories namely, interactionism, management judgment, ideological awareness, and the

exploration of historical conditions. These four theories are different and hence incommensurable. They are all adopted to solve the same management problem, looking at it from different views. It can therefore be argued that the IBIM theory like that of the TSI, maintains diversity and embraces paradigm incommensurability.

7.6 The IBIM and Local Systems Intervention (LSI)

Flood (1996) states that LSI was developed as a result of a postmodern critique of TSI. He writes that LSI is a process of creative thinking about issues to be managed, choice making over options available, and implementation of choices made achieving widely informed and locally relevant intervention. Like TSI, LSI has its roots in critical systems thinking. Flood (1996) states that the LSI problem solving approach, operates a system of thought that is able to deal with problematic issues arising from four key dimensions of organization. The key issues include

- *Organizational processes* - flows, and controls over processes.
- *Organizational design* - functions, their organization, coordination, and control
- *Organizational culture*- mediation of behaviour and the decision making process in terms of people's relationship to social rules and practices.
- *Organizational politics* - power and potency to influence the tide of events.

According to Flood (1996), organizational processes and organizational design belong to the how? - type discourse. While the what?- type discourse embraces issues related to organizational culture, the why? - type discourse looks into issues related to organizational politics. He holds that unless all four key dimensions of organization are taken into account in the process of conceptualizing issues to be managed, ways of managing our affairs become unnecessarily reduced.

LSI will better be understood if we take a look at the underlying principles of its process and the process of LSI itself.

7.6.1 The principles of LSI

Flood (1996) summarizes the principles of LSI in the following manner.

> "There are four main principles to be extracted from the philosophy and ideal systemic model for LSI - being systemic (as opposed to being reductive in vision about organizational activities), achieving meaningful participation (as opposed to dictating what is to be regarded as primary and expecting others to comply), being reflective (as opposed to taking for granted a specific vision and becoming deaf to other possibilities), and the goals of enhancing human freedom.."
> (Flood, 1996, page 100).

According to Flood (1996), the 'systemic principle' requires taking into account the whole, the effects of interaction and feedback between subsystems. The principle also requires the identification and prevention of the occurrence of undesirable counterintuitive consequences. The principle of 'meaningful participation' emphasizes the need to take into account the perceptions of people involved and affected. The principle of 'reflection' requires interventionists to reflect on the relationships between different organizational interests and ways in which practices may be directed. The principle also emphasizes the need to reflect on the dominance of favoured approaches to intervention. The goal of enhancing 'human freedom' principle emphasizes the need for human emancipation in terms of freedom of choice.

7.6.2 The process of LSI

Flood (1996) writes that the process of LSI has three modes of operation namely, the critical review mode, problem solving mode, and the critical reflection mode.

7.6.2.1 Critical review mode

In this mode all methodologies that can be used in intervention are identified and reviewed. It is from a list these that particular methodologies are chosen and applied in the problem solving mode. Flood (1996) states that the review is done at two levels i.e. at the level of creativity, choice and implementation (Flood *et al,* 1993), and at the level

of how? -, what? -, and why? – type questions. Flood briefly explains the critical review mode as follows

> "In short, the Critical Review Mode is needed so that people can prepare themselves a diverse system of models and methodologies, capable of tackling the complex and diverse issues that they face today. It is not possible to address issues in a satisfactory way with LSI unless an adequate base of models and methodologies has been reviewed and incorporated in the system of approaches." (Flood, 1996, page 103).

7.6.2.2 Problem solving mode

The problem solving mode is made up of three phases; creativity, choice and implementation. In creativity, a wide range of issues to be dealt with, are brought to the surface. Flood (1996) writes that this is achieved by taking a multiple perspective of the management problem facing the organization. Flood also encourages the use of metaphors to facilitate plausible explanation of the problem. In choice, a methodology, or methodologies, is identified from a list compiled in the critical review mode. The choice phase is guided by how, what, and why type - questions Implementation involves using the identified methodology or methodologies to tackle the management problem.

7.6.2.3 Critical reflection mode

In the critical review mode, the suitability of the methodology or methodologies adopted in the problem solving mode is evaluated. The suitability is looked at in the context of conformity to the principles of LSI. Evaluation of the methodology or methodologies is also scrutinized in terms of the appropriateness of the outputs. According to Flood (1996), the critical review mode is analyzed in terms of creativity, choice and implementation phase.

7.6.3 Differences between the LSI and IBIM

- Like the TSI, LSI emphasizes the need for interaction, management judgment and ideological awareness, but it does not acknowledge the need to explore historical conditions. IBIM emphasizes all four critical success factors.
- According to the LSI process, it is possible to implement the methodology in the problem solving mode before a critical reflection is done. This is akin to taking action first and evaluating the consequences of the action later. Such an approach might prove costly in some cases. This is not the case with the IBIM because critical reflection is done first in phases six and seven before implementation in phase eight.
- The LSI is essentially cumbersome because it requires stakeholders to get to grips with all potential methodologies available in the literature during the critical review mode. This is not the case with the IBIM.
- Similar to the TSI, particularly during the creativity and the choice phases, depending on the nature of the problem, it is possible to exclude some of the critical success factors. This is against the philosophy of IBIM, which asserts that in the process of intervention irrespective of the nature of the problem all the critical success factors must be addressed.

7.7 Conclusion

In this chapter, the IBIM has been designed using the critical success factors. By doing so, the chapter has discussed the third and final component of the management intervention framework; the design of an intervention methodology using the theory for management intervention. Since the design of the methodology was guided by a cognitively and ethically adequate theory for management intervention, the resulting methodology is therefore, adequate.

The adequacy of the IBIM has also been confirmed by comparing it with other leading systemic methodologies; the Total Systems Intervention (TSI) and the Local System

Intervention (LSI). It has been shown that the IBIM seems to be more congruent with its theory than TSI and LSI are with their respective theories.

Hence, drawing from chapters five through this chapter, the complete claim of this thesis therefore reads

> A successful intervention methodology can be designed if first, we treat inquiry as a philosophical exploration and second, if the output of such treatment is adopted to formulate a theory for management intervention and third, if this theory is used to design the methodology.

PART THREE

Testing the Management Intervention Framework

Chapter Eight. Reflections on the Inquiry Based Intervention Methodology.

8.1 Introduction

In chapter six it was held that the IBIM is likely to produce successful results because it is based on a relatively adequate theory for management intervention. It was also argued that such a theory seems to be adequate because it can effectively explain, and describe all the three characteristics of management problems; organic, cultural and power characteristics. In Appendix A, it is shown how the IBIM was successfully applied to improve the performance of two divisions of a firm manufacturing motor vehicle components.

Nevertheless, several questions still need to be answered. For instance, what research method was adopted and why? What problems were encountered during the field study, and how did the feedback from the field study help shape the methodology and its theory? How did the practical application of this methodology impact on its adequacy? Furthermore, what are the limitations of the methodology, and what future work needs to be done in order to improve it? This chapter aims to address these questions.

Addressing these questions not only outlines the strengths and weaknesses of the IBIM and its theory, but also underscores issues that have been leant by the author in this research, particularly the manner in which the research changed his way of thinking.

8.2 Reflections from the field study

8.2.1 The research method adopted

One of the issues emphasized by the theory for the IBIM is interaction of all relevant stakeholders in dealing with a management problem. Hence, research methods such as

the use of questionnaires, or the Delphi technique was found unsuitable. The appropriate research method was to get all relevant stakeholders work in groups referred in this thesis as "meta sets", and "sets." Much of the information shown in Appendix A was obtained from the groups reports, by observing the groups at work, or through direct interaction between the author and some of the group members.

8.2.2 Relevance of the field study to the research

There are two main contributions made by the field study, to this thesis. First, the feedback from the field enabled the IBIM and its theory to be improved. Second, the field study revealed that though the methodology may prove to be adequate, yet the capability of the participants may be a decisive factor for the success of intervention. These two contributions are discussed in more detail below.

8.2.2.1 The field work and the adequacy of the IBIM

The earlier version of the IBIM did not include phases six and seven, identification of the inhibitors of interaction and management judgment, and identification of causal factors for the inhibitors respectively (please see figure 7.1 in chapter seven). The inclusion of these two phases was prompted by the skepticism shown by some of the members of the meta sets regarding the success of intervention in the earlier stages of the field study. For instance, one member commented that

> "We have been running a number of programmes in this foundry workshop such as Quality Cycles and Process Optimization, formulation of vision and values for the past two years or so, but the problem is: management seems not to be committed to oversee their implementation. This caused such programmes to burn out. So, is there anything special with this one?"

Such comments prompted the author to take a critical look at the methodology. It was discovered that the issue of management commitment is crucial because it influences the availability of resources needed to facilitate intervention. Ownership of resources has a lot to do with organizational politics. Since politics is power in action (Pfeffer, 1981), it was consequently concluded that the question of power is central to the

success of intervention efforts. It was noted that there was a need to critically look at the nature of management problems and formulate an intervention theory that can adequately address these problems. It was decided to identify a relevant social theory for the methodology. At this stage a new problem emerged i.e., since there are many social theories in the literature, what criteria should be adopted to identify an appropriate theory for the methodology?

Treating inquiry as a philosophical exploration seemed to provide an answer to this question, because two criteria were identified; the relevance, and the reliability criteria. For a theory to be relevant, it must be both cognitively and ethically adequate. As a consequence, the theory must be capable of dealing with all the characteristics of management problems. Different social theories discussed by Burrell *et al* (1979) located in different sociological paradigms, and Vickers's (1968; 1995) three fields of inquiry, appeared to provide a theory for management intervention that is capable of dealing with all the characteristics of management problems; organic, cultural and power characteristics.

It was established that while social theories located in the Burrell and Morgan's functionalist paradigm were capable of dealing with organic characteristics, social theories located in radical humanism and radical structuralism paradigms had the ability of dealing with power characteristics. Finally, Vickers's three fields of inquiry were capable of dealing with cultural and to some extent, organic characteristics.
The reliability criterion required the developed theory to be both coherent and consistent.

Treating inquiry as a philosophical exploration and the development of a theory for management intervention took place when the meta sets were undertaking phases one through five of the earlier methodology, which almost remained the same after revision. Note that while the earlier version of the methodology was capable of dealing with organic and cultural characteristics of management problems, the final version was capable of dealing with these two and the power characteristics.

8.2.2.2 The IBIM and capability of the participants

Flood and Carson (1988) hold that complexity is also related to a person's capability in understanding complex situations. They extract Ashby's words as follows:

> "...to the neurophysiologist the brain, as a feltwork of fibers and a soup of enzymes, is certainly complex; and equally the transmission of a detailed description of it would require much time. To a butcher the brain is simple, for he has to distinguish it from only about thirty other "meats"."
> (Flood and Carson, 1988, page 33).

According to Ashby, the neurophysiologist and the butcher have different capabilities for understanding a complex situation i.e., the brain. Their difference in capabilities gives them different definitions of it. The role of our capabilities in understanding complex situations is also acknowledged by Warfield (1999), who holds that complexity finds its locus in the human mind, rather than in some corpus that the human is striving to comprehend. Warfield supports his view by quoting the work of Peirce as follows:

> "One singular deception of this sort, which often occurs, is to mistake the sensation produced by our own unclearness of thought for a character of the object we are thinking. Instead of perceiving that the obscurity is purely subjective, we fancy that we contemplate a quality of the object which is essentially mysterious.."(Warfield, 1999, page 19).

According to Peirce, we understand complex situations differently because we posses different levels of unclearness of thought. A person's unclearness of thought level is similar to Flood and Carson 's (1988) idea of a person's capability.

If we agree with the fact that people's capability to perceive complex situations, influences the manner in which such situations are understood, we can conclude that the capability of stakeholders who are involved in the intervention through the IBIM, influences the success of intervention.

The field study brought to the fore the fact that though the IBIM may be adequate, it can still fail to produce successful results if incompetent, or the wrong, stakeholders are involved in the process. This view is supported by the fact that the author of this thesis, who acted as a facilitator of the meta sets during the field study, was compelled to devote a lot of time to the exercise, particularly when the first five phases of the IBIM were being implemented. A lot of time was spent in the process because certain issues related to the intervention exercise have to be explained now and then to the members of the meta sets. This was because the members of the meta sets lacked the necessary expertise particularly, in the area of strategic and operations management. It was therefore difficult for them to implement the methodology, hence it was established that if IBIM is to be successfully implemented, the involved must be knowledgeable in the areas mentioned above. It was therefore observed that before the IBIM is adopted, the organization must ensure that those stakeholders participating in the implementation must have the necessary training in strategic and operations management. If the stakeholders lack this kind of training, then a crash training programme must be undertaken before adopting the IBIM.

There is therefore a chance that the limited capability of the line supervisors in strategic and operations management negatively influenced the quality of information used in the intervention process. Better results would have been possible if more senior managers and other external stakeholders had also been involved.

8.3 Reflections on the adequacy of the IBIM

It seems that there are three traditional views regarding the relationship between the validity and design of intervention methodologies. The first view belongs to writers who hold that the validity of methodologies must be looked at after such methodologies are designed (Barlas, 1989); (Barlas and Carpenter, 1990); (Forrester, 1968); (Sterman, Repenning and Kofman, 1994); (Ulrich, 1987). Writers in this camp believe that methodologies should be inspected for defects after they are built. It is only when they are declared "defect-free," then their recommendations are implemented. One

drawback of this view is that it can lead to inefficient design process because one may need to discard one or more methodologies before a valid one is designed or identified. The second view belongs to writers who maintain that one cannot separate the design of methodologies from validation, and that these two activities need to be undertaken simultaneously (Landry and Oral, 1983). According to this group, designing a methodology involves being simultaneously engaged in its validation. For instance, Landary and Oral write that

> "One cannot handle, in practice, the process of modeling and validation separately. Building a model involves being simultaneously engaged in its validation." (Landry and Oral, 1983, page 208).

According to Landry and Oral, validation and methodology design must be pursued in parallel. While this approach seems to be superior to the first in terms of the efficiency of the design process, it however, assumes that both validation and methodology design independently determine the success of intervention efforts. The approach seems to downplay the linkage between validation and methodology design, hence is likely to negatively influence the success of intervention efforts. Our view is that if successful intervention is to happen, the validity of the methodology must first, determine the methodology design.

The third group of writers hold that the validity of methodologies should be judged after putting such methodologies into practice (Checkland, 1995). This group seems to argue that the validity of a methodology, or model, will depend on it, achieving the envisaged objectives. For instance, Checkland referring to his Soft Systems Methodology (SSM) writes that

> "In SSM you cannot know for sure whether or not a given root definition and model are relevant, you *learn* your way to relevance by going round the cycle....often many times in the course of a study." (Checkland, 1995, page 53).

Since the SSM cycle includes taking action (Checkland, 1981); (Flood *et al,* 1993), it means that the SSM is pronounced valid after implementation. This type of validation

i.e., validation through implementation, can prove to be a costly exercise, especially when the theory of the methodology is inadequate.

An alternative view, which is adopted in this thesis, holds that in order to enhance the validity of intervention methodologies, the criteria for adequacy of an intervention methodology must be identified up front and used to design the intervention methodology. The approach requires putting validation at the helm of methodology design process. In this section, we intend to show that the IBIM is likely to be valid because this view was adopted in designing it.

8.3.1 The criteria for adequacy and the IBIM

In chapter six, it was held that a valid intervention methodology must satisfy two interrelated criteria for adequacy; the relevance and reliability criteria. It was argued that a relevant and reliable methodology must be both cognitively and ethically adequate, as a result, capable of dealing with all the characteristics of management problems. We must therefore examine the validity of the IBIM in view of the criteria of relevance and reliability.

8.3.1.1 Relevance of the IBIM

There are two interrelated aspects of the relevance criterion. The first is related to the methodology's ability to promote learning (Checkland, 1995). This aspect maintains that it is the users of the methodology who are supposed to decide whether a given methodology is relevant or not. The second aspect refers to the utility of the methodology, i.e., whether the methodology can solve the management problem for which it was intended. Ferre (1995) identifies this aspect as the 'adequacy' of the methodology. The two aspects are interrelated because a methodology with utility is likely to be capable of promoting learning and vice versa.

Ability of IBIM to promote learning

In the last day of the field study with the automobile component manufacturing divisions, twelve line supervisors were requested to comment anonymously on the ability of the IBIM to promote learning. They were requested to rank the methodology in a scale of 1 (poor) to 5 (excellent) and give any other comments regarding the methodology that they felt were important. Two line supervisors gave a score of 5, four gave a score of 4, five gave a score of 3, and one gave a score of 2. Some of the line supervisors gave the following comments

- The methodology can enhance learning if done by team members together
- The methodology needs a facilitator in case members get stuck
- Some of the stages of the methodology overlap, but this ensures that all the issues are covered
- It is good that the methodology helps participants come out with an action plan. This makes the participants more aware of the problem.

It can therefore be concluded that the IBIM seems able to facilitate learning.

Utility of the IBIM

Six months of fieldwork was not sufficient to obtain empirical evidence on the methodology's impact on the divisions' performance i.e., improvement in profitability, productivity, quality of work life of employees, and market share. However, since the design of the methodology was based on the premise that intervention is a philosophical exploration, the resulting theory for the methodology is therefore expected to be both cognitively and ethically adequate. Since it is cognitively and ethically adequate, it is capable of dealing with all the characteristics of management problems. Because the theory has this capability, the methodology, which conforms to this theory, must also possess this capability, hence is likely to have utility.

Note that more than six months of fieldwork are needed to gather sufficient empirical evidence on the impact of intervention efforts on performance.

8.3.1.2 Reliability of the IBIM

In this thesis a methodology is pronounced reliable if it conforms to its theory and is both coherent and consistent (Ferre, 1995); (Pepper, 1942).

Conformity of the IBIM to its theory

The IBIM conforms to its theory because, during its design Flood and Jackson's (1993) approach of moving systematically from the underlying theory of the methodology to its principles and from thence to the methodology itself, was adopted (please, refer to chapter seven). According to Flood (1994), the underlying theory (which he refers to as the underlying philosophy), of a methodology informs us as to what the world looks like when such a methodology is adopted. The underlying principles propose kinds of action that should be taken if such a worldview is adopted. The underlying principles of the IBIM are the sub critical success factors of each critical success factor (each underlying theory).

Coherence and consistence of the IBIM

The IBIM has a high degree of reliability because

- It is based on four critical success factors, which bear a coherent and consistent relationship - please see figure 6.4 in chapter six.
- The phases of the methodology are interrelated and somehow overlap, as one line supervisor commented.
- During the field study twelve line supervisors were invited to assess the IBIM on coherence and consistence. They were asked to give a score of between 1 (poor) and 5 (excellent) for the coherence and consistence of the methodology. For coherence seven line supervisors gave a score of 3; two, a score of 5; and three gave a score of 4. For consistence six line supervisors gave a score of 3, five gave a score of 4, and one gave a score of 2.

The validity of the IBIM is by design and not accidental. This is because of the nature of management intervention framework adopted in designing this methodology. The framework requires validation issues to be considered up front and guide the design of the methodology.

8.4 Research problems and directions for future research

Although the IBIM seems to be adequate, yet there is a perception that certain issues related to the methodology need further exploration. The first issue is related to the effects on the success of intervention, of unclearness of thought in the stakeholders involved in implementing the methodology. It has been established that the unclearness of thought inherent in the stakeholders' minds negatively influences the manner in which management problems are perceived, and hence, undermines the success of intervention efforts. Therefore there is a need for further research, to establish whether complementing the IBIM with a strategic and operations management training programmes will render the implementation of the methodology more efficient and effective.

The second issue that needs to be explored relates to the kind of organization structure appropriate for the implementation of the methodology. In this thesis a matrix structure was adopted (please refer to chapter eight). However, a matrix structure has its own disadvantages, for instance see Kerzner (1989). There is a need to undertake a research project to discover whether it is feasible to use other kinds of organization structure, which promotes stakeholder interaction such as the Viable Systems Model (VSM) (Beer, 1979) or the circular organization (Ackoff, 1994).

The third issue is related to the utility of the methodology itself. It was earlier mentioned that the time needed for establishing empirical validity of the methodology was too limited. In this thesis, an intervention methodology is pronounced empirically valid after it has been implemented if there is an improvement in profitability, productivity, quality of work life of employees and an increase in market share of the

firm that adopted such a methodology. A longer period of about two years is needed for appreciation of the methodology's empirical validity. Hence, there is a need to implement the methodology and evaluate its utility within this time period.

8.5 Conclusion

Several issues related to management intervention have been established by this thesis. First, it has been established that the existence of different theories of organizational decline indicates that there are also different views regarding the failure of intervention efforts at the level of theory, methodology and method for management intervention. It also indicates the existence of different intervention methodologies in the literature. Through a critical review of the literature, the thesis has confirmed the existence on different intervention methodologies. The thesis has argued that because there are different intervention methodologies, implies that there is a problem in the field of management intervention. There is a problem because organizations do not know which of these methodologies should be adopted. It is a problem also because some of the methodologies are in conflict. Based on this observation the thesis formulated the research problem. This is done in Part One of the thesis; Chapters One through Four.

The second issue that has been established by this thesis is the management intervention framework. The framework holds that if a successful methodology is to be designed, three interrelated conditions must be satisfied; inquiry must be treated as a philosophical exploration, the output of such treatment must be adopted to develop a theory, and the design of the methodology must be guided by this theory. The framework has been used to develop a theory for management intervention and the associated methodology in chapters five and six respectively. This was done in Part Two of the thesis.

The third issue that has been acknowledged by this thesis is the significance of the fieldwork to the adequacy of the methodology and its theory. It has been established that the design of any intervention methodology must be complemented with testing the methodology in a real life situation. This approach helps further improve the designed

methodology and the associated theory. This third issue was established in Part Three of the thesis.

Last but not least, it has been established that, though the methodology can be based on a valid intervention theory, it may not necessarily produce successful results if wrong stakeholders are involved, because the stakeholders' abilities to adequately understand strategic and operations management issues influence the success of intervention efforts.

There are two major contributions of this research to knowledge. First, the research has established that while the social sciences are a good source of theories for management intervention, philosophy should be given a chance to determine which of these social sciences are be adopted to guide our intervention efforts. In this way, our intervention efforts are likely to produce successful results. Second, a theoretical contribution of the research is based on taking a philosophical approach in the development of a theory for management intervention. The development of an intervention methodology from such a theory is perceived as a practical contribution of this research to knowledge.

Appendix A. Putting the IBIM into practice: The Case of firms in the South African Motor Vehicle Component Sector.

A.1 Introduction

The productivity of the South African manufacturing industry, to which the motor vehicle component sector belongs, has deteriorated considerably over the last two decades or so, (Liebenberg, 1996). Joffe *et al* (1995) report that the poor manufacturing performance is manifested in low output and low employment growth, as well as by low rates of export growth. They state that since 1981, manufacturing output has not only stagnated, but has also been subjected to significant year on year fluctuations. Similarly, since 1982, manufacturing employment, despite some fluctuations, has shown a tendency to decline. For instance, the authors point out that in 1993, there were 89,000 fewer jobs in manufacturing than there had been in 1982. Despite a growing trend over the last decade to export manufactured goods, the increase is still far from satisfactory (Joffe *et al,* 1995).

Though manufactured exports increased this does not necessarily imply that the South Africa manufacturing industry became more competitive. Possible causes include the existence of export incentives, the declining value of the Rand and low levels of demand in the domestic market.

It is worth noting that performance trends in the entire manufacturing industry have not been homogeneous. For instance, while the average annual growth multifactor productivity rate (combination of fixed capital and labour productivity) from 1980 through 1993 for basic iron and steel and, basic non ferrous metals sectors were positive, those for the motor vehicle and furniture sectors were negative (Liebenberg, 1996).

It therefore seems reasonable to classify the manufacturing industry into sectors that bear similar features. Liebenberg (1996) identifies 21 manufacturing sectors which share similar features in terms of, among others, labour productivity, fixed capital productivity and multifactor productivity.

In this chapter performance trends in the motor vehicle component sector are discussed. It is shown that the performance of firms in this sector has been worsening over the decades. The chapter also presents and evaluates various intervention models proposed by some writers, aimed at improving performance in this sector. The chapter also discusses why it is appropriate to intervene through the IBIM. Finally, the chapter outlines how the IBIM was applied to improve performance in two divisions of a medium size company manufacturing motor vehicle components situated in Port Elizabeth, South Africa.

A.2 Performance trends in the motor vehicle components manufacturing sector

The current performance trend of the South African motor vehicle industry and the component sector in particular, is well explained by Black who writes

> "The South African industry is locked in a vicious circle. The domestic market is stagnating and the production structure is highly fragmented with output levels well below minim efficient scale. As a result the industry is uncompetitive internationally and high costs have put cars increasingly beyond the reach of local customers. These factors also make in unattractive as a site for new investment. To add to these problems the industry is faced with a number of serious weaknesses. It is far from major markets, skill levels are limited, the component sector is fragmented and non competitive and labour relations are highly adversarial." (Black, 1994, page 109).

The causes of the above situation described by Black can be appreciated if developments on policy formation in this industry in the past three decades or so are explored.

8.2.1 Developments in the motor vehicle component sector

Viljoen (1993) writes that in nearly all developing countries, the motor vehicle industry goes through five stages. These include:

1) Infancy i.e. assembly only.
2) Limited local content i.e. localization of certain components such as glass, tyres, batteries, etc. is enforced through local content requirements.
3) Higher local content. In this stage the industry is seen as an engine for industrial development. Imposition of higher local content requirements sometimes in excess of 80% and "people's car" initiatives in some instances.
4) Restructuring and rationalization. In this stage both component producers and assemblers become subject to criticism for being overprotective. There may be attempts to rationalize the industry by reducing the number of makes or models and standardizing certain components.
5) Deregulation and export promotion. This may result from failure of attempts to rationalize the industry. Protection on Completely Buildup Units (CBUs) and local content requirements are reduced. Exports of components and CBUs can be offset by greater imports.

The history of South African motor vehicle component sector dates back to 1920s when Ford and General Motors established assembly plants in Port Elizabeth. The sector has been going through the above five stages. It is currently somewhere between stage 4 and 5.

However, the development that had the major impact on performance of this sector in the last three decades or so, is the implementation of a series of local content programmes by the Government during stage 2 and 3 of the industry's life. During this period component manufacturers were supposed to attain a certain level of local content by weight, and in the later years by value, so as to be granted a certain level of excise duty rebate. According to Black (1994), between 1961 and 1980 a series of five local content programmes were introduced. The first, which was introduced in 1961, attained a 20% local content level by weight. The second programme, which ended in 1971,

raised the local content programme to 52% by weight, and the third programme was set to reach 66% by weight in 1977. While the fourth local content programme was a consolidation of the third with no additional requirements, the fifth, introduced in 1980, applied a local content requirement of 50% by weight, rising to 66% in 1982.

According to the BIT (Black, 1994), the local content programmes up to and including the fifth programme had the following weaknesses:

- A tendency to produce low cost, low technology components which were not remunerative to export and were produced in uneconomic volumes, so locking the sector into a low volume, high cost production structure.
- A very high bill, as source companies tended to load the prices of components they supplied to local producers. They were largely supplying high technology components, which the local sector did not produce. Also this raised prices as there were no incentives to produce low weight, high cost components locally.

Because of the above problems, the sixth local content programme was introduced, in 1989. This programme which can be located in stage 3 of Viljoen's life cycle (Viljoen, 1993), had major influence on the future performance of the motor vehicle industry. Some of these effects can even be seen today. The programme was supposed to meet the following objectives (BIT, 1989):

- The promotion of investment, job creation and growth
- Satisfaction of the country's essential transport requirements
- The improvement of productivity
- Minimizing price increases
- Maintaining a high level of competition.

As will be discovered later, most of the above objectives were never attained. According to Black (1994), the sixth local content programme operated through the imposition of an excise duty of 37.5% on all locally manufactured components. However, this duty is rebatable to the extent of 50% of the local content by value so that, if the local content target of 75% is achieved, no duty is payable. Note that the local content this time was by value and not by weight. In addition to the protection

provided by the local content programme, the sector also receives tariff protection on items that fall outside the ambit of the sixth local content programme. Black (1994) states that as far as the manufacturers of the motor vehicle components are concerned, the sixth local content programme has the following implications

- It became possible for local motor vehicle assemblers to source components offshore
- It caused a proliferation of motor vehicle assemblers in small markets making it difficult for component manufacturers to benefit from economies of scale. For instance, the number of models rose from 20 in the fifth local content programme, to 34 in the sixth local content programme.
- Exports have risen significantly though they still account for less than 10% of output.

A.2.1.1 Effects of the sixth local content programme on performance

As mentioned earlier, the performance of the motor vehicle component sector in the past decade or so has not been impressive, particularly in terms of cost per unit, productivity, profitability, and the creation of employment. These areas are discussed in detail below.

High manufacturing cost per unit

The cost of materials accounts for 70% - 80% of full manufacturing cost of components (Black, 1994). The cost of materials therefore influences to a large extent, the price of components and hence, of assembled motor vehicles. The local price of sheet metal and Aluminium is 41.4% and 58.4% respectively higher than imported prices (Black, 1994). This high cost of material makes the manufacturing cost per unit so high that selling prices for components for instance, for Mercedes Benz, Volkswagen, BMW are on average 34%, 25% and 15% respectively higher than the landed prices of similar imported components. It is ironic to note that while the cost of raw material is too high for the motor vehicle component sector, the average annual growth productivity from 1980 through 1993 for South African basic iron and steel and basic non ferrous metals

sectors, was positive. It is ironic because these metal sectors supply raw material to the automobile component sector. The implication is of too great a gap between the manufacturing cost and the sales price of the raw materials from both the basic iron and steel, and the basic non-ferrous metals sectors. It suggests that these metal sectors, are characterized by high overhead costs, which are passed on to the motor vehicle component sector.

Under the sixth local content programme, high selling prices of the locally manufactured motor vehicle components compared to similar imported components make the local manufacturers less competitive and hence, fail to sell their components. Another reason for high manufacturing costs is low capacity utilization. For instance, Black (1994) writes that VW has a capacity for 70,000 vehicles per year using one shift and 120,000 to 130,000 using two. In 1992, it produced 50,000 vehicles. BMW has a capacity for 125 vehicles per day, but in late 1992 was producing only 75. The writer concludes that these kinds of disparity are to be found in all South African assembly plants. Under-capacity utilization is normally passed on to the component sectors supplying components to the assembly plants. The possibility for importing completely built up units (CBUs), and the lack of economies of scale; characteristic features of the sixth phase local content programme, contribute to low capacity utilization.

Low productivity

Between 1980 and 1993 the average fixed capital productivity growth rate for the motor vehicle sector was -7.8% (Liebenberg, 1996); the lowest in the entire manufacturing industry in this period. The labour productivity growth rate was also negative during the same period. The decline in productivity in this sector is partly caused by higher manufacturing costs and low capacity utilization.

Low profitability

The component producers federation has warned that some firms have been hit hard by the outsourcing arrangements brought in by the sixth local content programme: to the

extent that there could be large scale bankruptcies (Black, 1994). This implies that component producers are performing poorly in terms of profitability. Low profitability is expected because the sector is facing productivity, under-capacity utilization, and a decline in market share problems.

Negative employment growth rate

According to Liebenberg (1996), the employment growth rate in the motor vehicle sector between 1980 and 1993 was - 2%. Black (1994) also acknowledges this gloomy trend. Since the notion of employee development (Ackoff, 1994), has been replaced by retrenchment and 'right sizing', the quality of work life of employees has been negatively affected.

Decline in market share

The increase in imports, as compared to sales, of cars since 1986 (Black, 1994), implies that the market share of local manufacturers of components has been declining. This has been aggravated by the fact that, under the sixth local content programme some local car assemblers have the option of sourcing some of the components from offshore and thus, reduce the market share of local component manufacturers even further. In the case of Murray and Roberts foundries' for instance, the gap between the index for cars sold, and the index for tonnage of manufactured components sold, has been widening since 1992 (Black, 1994); indicating that the market share of the foundries is declining.

A.3 Management problems facing the component sector

Since performance problems facing the South African motor vehicle component sector are management problems, they must therefore posses the structural characteristics of management problems discussed in chapter six. It can therefore be shown that performance problems facing this sector are caused by the inability of the stakeholders,

which include the government, trade unions and manufacturing firms, to deal effectively with the three characteristics of management problems.

A.3.1 Inability to deal with organic characteristics

In order to deal with organic characteristics it was shown that it is necessary to consider the role of the environment, the need to uncover any misperceptions of feedback, the need to provide a structure to guide the intervention process and the need to manage uncertainty. The inability of the stakeholders to deal with the misperceptions of feedback are evident in the implementation of phase six of the local content programme because, though the initiative was intended to bring in positive intervention in the motor vehicle industry, it created unintended negative side effects instead. According to Black (1994), there are no institutional mechanisms that can check such side effects. He writes that

> "The ability to monitor the impact of policy or to predict its effects is limited. An example is the unintended consequences of the Phase VI programme. A model of the industry needs to be developed to make more accurate assessment of the impact of policy measures." (Black, 1994., page 120).

Intervention initiatives for the component sector have tended to assume that the future can be known with certainty. A good example includes policy options proposed by Black (1994) to be discussed later. We hold that since it is difficult to predict the future, it is better to implement those policies which are robust, i.e. those which are relevant in a number of possible futures.

On the other hand, the ability of the component sector to deal with the environment, is hampered by a limited availability and quality of data on this industry (Black, 1994). Moreover, the sector does not have a structure that may be used to bring together the trade unions, government, firms, suppliers and consumers, to discuss and sort out performance issues.

A.3.2 Inability to deal with cultural characteristics

Dealing with cultural characteristics requires the creation of a shared understanding amongst stakeholders, of the problem situation. This can be achieved by including the direct participation of all relevant stakeholders in dealing with performance related problems. Unfortunately, the component sector does not have the ability to deal with the cultural characteristics because stakeholders did not have a tripartite policy formation. This seems to be suggested by Black who writes that

> "As we enter a new democratic phase, tripartite and multilateral forums are emerging to deal with key restructuring issues. If a new strategic direction for an industry is developed in such a forum, it will enjoy wide support and is therefore likely to be more stable." (Black, 1994, page 108).

According to Black, the culture for participation by relevant stakeholders on issues related to policy formation was non existent, though there are signs that such a culture is emerging. Black also reports that the component sector, the assembly sector, and the trade unions have no shared understanding of the problems facing the industry. He writes

> "The assembly and component industries and their respective federations are primarily concerned with promoting policies favourable to their particular industry. This frequently takes the form of attacks on each other or lobbying government. While this is understandable, there needs to be far greater cooperation between the two major sectors of the industry."
> (Black, 1994, page 120).

Given the above situation, it is not possible for the various stakeholders to create a shared understanding of the problem situation. Hence, the ability of the component sector to deal with cultural characteristics seems limited.

A.3.3 Inability to deal with power characteristics

Since politics is power in action (Pfeffer, 1981), the implementation of a series of local content programmes, and the sudden withdrawal of the weight-based local content

programme by the government without consulting the motor vehicle industry, are clear indications of the misuse of power. Moreover, the recent one month industrial action by the National Union of Metal Workers of South Africa (NUMSA), of which the component sector is a member, is a clear indication of the inability of the stakeholders in this sector to deal with power characteristics. Such a prolonged industrial action has further affected negatively, the performance of this sector.

A.4 Black's Growth models for the component sector

Having appreciated the poor performance of the sector, Black (1994) proposes three potential growth models; rapid liberalization, further import substitution and guided integration into the world market.

A.4.1 Rapid liberalization

Black writes that this strategy would involve

- Elimination of local content requirements
- Elimination, or substantial reduction, of tariffs on imports of fully built up vehicles.

Black writes that the motive for rapid liberalization is that it would lead to lower costs in the domestic market and, theoretically, by reducing component costs could attract investment in world scale assembly plants, which would in turn provide a market for increased production of components: also at world scale. However, rapid liberalization without first, making the local industry competitive, will result in the collapse of this industry, since the local market would be flooded with imported components. In turn a flood of imports would lead to balance of payments problems, making further devaluation of the Rand imminent. To the local customers this would translate into high prices of components and hence, of motor vehicles. The government reaction would possibly be the re-imposition of protection.

A.4.2 The promotion of further import substitution

The elements of this growth model include:

- Higher local content requirements
- Government action to reduce the number of producers and limit proliferation of models
- State supported people's car
- State supported plan to boost local demand.

Black states that the people's car option calls for a cheap, basic car appropriate to Southern Africa conditions, that have a high level of local content. Other less ambitious policies of this growth model include measures to reduce the number of car models being produced domestically, skipping models, standardization of components, and local adaptations. Black holds that all these can reduce costs, increase economies of scale and at the same time provide scope for higher local design content.

However, it appears that the above strategies, which strive to stimulate local demand artificially, will not be effective because of two reasons. First, the Government, which is the main focus of the strategies, is unlikely to involve itself in creating local demand because of the negative macroeconomic implications. Second, the sector will not be able to penetrate the international market because its competitiveness is not addressed. This stems from the fact that, although problems related to capacity utilization are addressed through standardization, other problems such as high cost of raw materials and the nature of the technology employed have not been looked at.

A.4.3 Guided integration into the world market

Black writes that the objective of this strategy is to encourage specialization and investment in world scale component manufacture and assembly. The strategy assumes a reduction in the number of local assemblers and in the number of models being locally manufactured. It would also require more developed linkages with the world

market and, in particular, a greater commitment from domestic firms to upgrade their technology. It would also be necessary to gradually reduce protection for fully built up vehicles, coupled with some form of foreign exchange balancing arrangement to encourage investment in local capacity. However, it appears that implementation of this model could lead to massive loss of jobs coupled with a sharp rise in import of vehicles.

Furthermore, it seems that Black's three growth models cannot produce effective intervention in the sector because they do not properly address the characteristics of management problems. For instance, all the growth models proposed by Black assume that the environment is knowable and that there will be no misperceptions of feedback. Black also does not first acknowledge the need for full participation of all stakeholders in creating a shared understanding of the problem and in the identification of policy options. He also does not acknowledge the existence of power characteristics by, for instance, taking it for granted that component manufacturers and trade unions can easily be coerced to accept car models' variety reduction plans.

A.5 Performance improvement of firms in the component sector through the IBIM

The author believes that the IBIM is likely to improve the performance of firms in the motor vehicle component sector. This is because

- The IBIM focuses on the improvement of productivity, profitability, market share and the quality of work life of employees. Firms in the component sector have been performing poorly in these areas and they need to improve in them. The quality of work life of employees has been negatively affected by a series of retrenchments and by lack of consultation in decision.
- It has been established that the component sector is performing poorly because it does not have the ability to deal with the organic, cultural and power characteristics of management problems. Since the IBIM addresses these characteristics, it is therefore advisable to make use of this methodology to improve the performance of firms in this sector.

Because of the above reasons, two divisions of a medium sized firm that manufactures motor vehicle components were identified and a request to apply the IBIM to improve performance of these divisions was made. Fortunately, the requested was accepted. Performance improvement through the IBIM, was undertaken by the author between September, 1997 and March, 1998. The process is explained in detail in the sections that follow.

A.5.1 Application of the IBIM to a firm in the component sector

Earlier, it was mentioned that firms which manufacture motor vehicle components in South Africa are facing poor productivity, declining market share, low profitability, and a negative employment growth rate which, contributes to the degradation of the quality of work life of employees. It was further mentioned that the performance of firms in this sector can be improved through the application of the IBIM. In this section it is shown how the IBIM was put into practice to produce intervention in two divisions of one firm which manufactures motor vehicle components. The divisions that are hereafter referred to as, divisions ABC and XYZ are both located in Port Elizabeth and produce a wide range of motor vehicle component models.

The ABC division specializes in producing cast iron based cylinder heads and manifolds for a wide range of vehicles including those of Volkswagen, Ford and Toyota Corolla. The parts are sold to assemblers of these kinds of vehicles in South Africa. The XYZ division on the other hand, is engaged in casting Aluminium based motor vehicle components. These components include cylinder heads, cylinder blocks and exhaust manifolds, again for a wide range of vehicles such as Volkswagen, Ford, Nissan, and Toyota Corolla. In total, sixteen line supervisors (eight from each division), were involved in implementing the IBIM. The line supervisors came from different departments of the divisions, including those of quality control, purchasing, personnel, engineering, maintenance and casting. Nine, four-hour workshops were conducted in Port Elizabeth from the 18th of September 1997 to the 6th of March 1998. The layout of the whole fieldwork is shown in table A.1.

Table A.1. Schedule of workshops conducted at ABC and XYZ divisions.

Date	Activity
18/9/97	Sensitization workshop for senior managers and formation of meta sets
2/10/97	Sensitization workshop for the meta sets
24/10/94	Scenario construction and identification of competing capabilities
7/11/97	Identification of intervention projects
21/11/97	Prediction
23/1/98	Design of intervention projects
6/2/98	Design of intervention projects and identification of inhibitors of effective intervention.
20/2/98	Identification of causal factors of the inhibitors of effective intervention.
6/3/98	Dealing with implementation and evaluation issues.

A.5.1.1 Preparatory activities for intervention in divisions ABC and XYZ

Phase one of the methodology: Formation of meta sets

Three kinds of workshops were conducted in phase one of the IBIM; sensitization of senior management of the two divisions to the IBIM, formation of meta sets, and sensitization workshop for the meta sets to the IBIM. These were conducted on the 18th of September and the 2nd of October 1997 (please refer to table A.1).

Sensitization of the IBIM to senior management

On the 18th of September 1997 the author traveled to Port Elizabeth to conduct a sensitization workshop for senior managers of the two divisions. Amongst the senior managers who attended the workshop was the managing director of division XYZ, the human resource manager of the two divisions, marketing managers and technical managers of the two divisions. The author presented a workshop whose main objectives were:

- To present the main features of the inquiry based intervention methodology.
- To ensure the appreciation of the effectiveness of the IBIM in improving the performance of the divisions.

- To identify members of the meta sets (people who would participate in the implementation of the methodology).
- To agree on the overall duration and the modus operandi of the intervention initiatives.

At the end of the workshop, senior managers agreed to identify prospective members of the meta sets. It was also agreed that the author should start conducting these workshops for line supervisors in the first week of October 1997, and that the workshops should last for six months.

Sensitization workshop for members of the meta sets

On the 2nd October 1997, a four-hour sensitization workshop was conducted to selected members of the meta sets - in this case line, supervisors. There were sixteen line supervisors in total; eight from each division. The objectives of this workshop were

- To enable the line supervisors to gain an understanding of the elements of IBM
- To enable the line supervisors to appreciate the effectiveness of IBIM.
- To identify other potential players, or rather stakeholders, in the implementation of the IBIM.
- To agree on future workshops schedule, and on administrative issues related to these workshops.
- To enable the line supervisors to identify set advisors and the clients of their projects.

In this workshop, the author played the role of a facilitator. At the end of the workshop, the line supervisors were given an assignment of identifying their clients, discussing with them on their future roles and report back to the facilitator during the following workshop scheduled on the 24th of October 1997.

On the 24th of October 1997, the author conducted a workshop on phase two activities, as indicated in table A.1. These activities included scenario construction, identification of competing segments and competing capabilities. The author divided the line

supervisors into two groups; those who work with division XYZ formed one group, and those who work with division ABC formed the second.

After the line supervisors were seated in their groups, the author introduced scenario construction by pointing out that we learn in order to cope with the changing environment, and the first step to coping with change is to try to predict the change itself. The author mentioned that scenario construction would help line supervisors to identify and predict the various futures, in the form of scenarios with the potential for occurrence within the specified time frame. It was stated that a scenario is an internally consistent view of what the future might turn out to be. Scenario construction, being in this case, the construction of reality as perceived by the line supervisors. The author also mentioned that the scenarios are mutually exclusive in that only one scenario can happen at a given time.

A.5.1.2 Intervention in the ABC division

Phase Two. Scenario construction and identification of competing capabilities

Stage One. Scenario construction

Identification of time frame and scope

The meta set through a brainstorming exercise chose a three year time frame. A much longer time frame was not chosen because:

- Pressure was mounting from competitors so, there was a need for a division to act in creating an entry barrier, positioning itself ahead of competitors or differentiating itself from them.
- There was a growing need to enter the international market as soon as possible.
- The next general election was about two years away.

On the other hand, a shorter time period was not chosen because the division is capital intensive and is not possible to change the technology used in less than three years. As mentioned in chapter seven, there are three types of scope; technological, product, and geographical, scope. Technological scope is the type of technology to be adopted in the

specified time frame. Product scope refers to the kind of products the division strives to offer in a given period. Geographical scope refers to the nature of the markets to be served i.e., whether local or/and international, again, within a specified period. On identification of scope, the team through a brainstorming exercise reached the following conclusions

- Technological scope:
  - The main raw material to be used will be sand
  - The production process will be disamatic i.e. vertical moulding
  - Using foundry copula furnaces
- Product scope
  - Production of motor vehicle components such as cast iron cylinder blocks and cylinder heads.
  - Production of cast iron exhaust manifolds for a wide range of vehicles
  - Production of all cast iron based motor vehicle accessories e.g. gear boxes and clutch plates.
- Geographical scope:
  - Marketing the above products to both the local and the international markets.

Identification of stakeholders

According to Schoemaker (1992), a stakeholder is any person who can be affected by the decisions of the division, and especially if such a person can flex his/her muscles as a result of such a decision. The meta set for division ABC identified customers, suppliers of raw materials and semi finished components, trade unions, Government, shareholders, employees, competitors and financial institutions, as stakeholders.

Identification of corporate goals

The vision of ABC division for the next ten years read

- People's business where
  - All our people work together to make work easier and the business better
  - Our people have meaningful and life-long careers with us
- A top performer where
  - We always do better than our stakeholders expect of us

- A world competitor where
  - We are an international business with international partners
- A first choice supplier where
  - Customers worldwide prefer to do business with us because we are best at delivery, service, and satisfying their needs. Price and quality are synonymous with our name.
- A product based business where
  - We sell castings and casting-based products, using our full production capacity
- A technology leader where
  - We own and use the best technology in the world
  - We grow our castings market using our own technology
  - Our plants compare with the best in the world in all respects
- A balanced business where
  - We have a balanced mix of products and customers
- A dominant local player where
  - We continue to dominate the South African automotive castings market
- A first choice customer where
  - Our suppliers prefer doing business with us and always give us the best service
- A part of the community where
  - We help the communities where we operate, in a meaningful and visible way
  - We care for the environment.

Based on the above vision statements, the team came out with the following corporate goals:

- To improve productivity.
- To improve profitability
- To improve market share
- To ensure customer satisfaction.
- To be internationally competitive in terms of technology and productivity.
- To promote teamwork.

- To improve the quality of work life of employees.

Identification of basic trends

Basic trends are existing conditions that can significantly affect the motor vehicle industry's future. The team identified the following trends with their corresponding nature of impact on the existing health of the division:

Trends	Nature of impact
The demand of motor vehicles from customers is increasing.	Very positive
Suppliers of raw material and semi finished components will continue to struggle to keep up with demand.	Negative
Competition will continue to increase.	Very negative

Identification of uncertainties

Uncertainties are trends that are difficult to establish with certainty the kind of patterns they are likely to assume in future. What the meta set did, was to assign measures such as low, high, very high or weak, moderate, and strong to signify the expected degree of occurrence. The meta set identified the following uncertainties with their corresponding nature of impact on the health of the division.

Uncertainty	Intensity of Occurrence	Nature of Impact
Relation between trade unions and Management of divisions to worsen.	High	Very negative
	Moderate	Negative
	Improves for the better	Positive
Government to increase import taxes for imported motor vehicles.	High	Very positive
	Low	Positive
Division will clinch international contracts.	Large orders	Very positive
	Small orders	Positive

Scenario construction

Scenarios are constructed by merging basic trends and uncertainties that have similar impact on the performance of the organization. In constructing scenarios, the meta sets

decided that uncertainties and basic trends with very positive impact should form the first group, those with positive impact, the second; those with negative impact, the third, and those with very negative impact should form the fourth group. The meta set created four scenarios based on these groups namely:

A very bright scenario. In this scenario local demand for motor vehicles will continue to increase. This will be coupled with a high increase in import taxes on imported motor vehicles and thus discourage potential customers from importing vehicles. The division will also get large orders for motor vehicle components, from offshore manufacturers.

A bright scenario. In a bright scenario, relations between the trade unions and management will improve for the better and hence, reduce the likelihood of industrial actions, which would have negatively affected the division's performance. This will be coupled with a low increase by the Government, in import taxes for imported motor vehicles, and thus slightly discouraging potential customers from importing vehicles. There will also be a small quantity of motor vehicle components that will be ordered from the division by international manufacturers.

A gloomy scenario. In a gloomy scenario the suppliers of raw material and semi finished components will continue to struggle to keep up with demand. This will be accompanied by a moderate improvement in relations between the trade unions and management. The improvement in relations will make industrial action unlikely.

A very gloomy scenario. In this scenario there will be an increase in competition from other component manufacturers, negatively affecting the profitability and growth of the division. This will be accompanied by worsening relations between the trade unions and management, which will pave the way for very frequent industrial action, badly affecting the performance of the division.

Stage Two. Identification of strategic segments

Strategic segments are battlefields in which the organizations might be competing. Essentially, they signify the nature of customers to be served. The meta set identified two categories of customers; large scale, and small scale customers. While large scale customers purchase all their components from the ABC division, small scale customers do not. The latter had other sources of components. They were however, supplementing their requirements with components from the ABC division.

Stage Three. Identification of key competing capabilities

Capabilities refer to a firm's ability to deploy resources for a desired end. Capabilities are information-based processes or activities, that are firm-specific, and develop over time through complex interaction amongst the firm's resources. To facilitate the formulation of required capabilities, the following question was answered by the team: *If this scenario turns out to be true as far as this strategic segment is concerned, what capabilities are needed so that the corporate goals can still be attained?* The following capabilities were formulated as indicated in the cells of table A.2:

The capabilities with the number of times they appear in the table is given next

- Reduction of scrap rates(7)
- Reduction of production costs(5)
- reduction of cycle time(4)
- Employee motivation(4)
- Increase in marketing efforts(4)
- Improvement of machine availability(4)
- Rethinking purchasing procedures(2)
- Employee training(1)

The team identified all capabilities except employee training as key capabilities.

Table A.2. Identified division capabilities

Very bright Scenario	Bright Scenario	Gloomy Scenario	Very Gloomy Scenario	Strategic segments
• Reduction of cycle time • Improvement of machine availability • Reduction of scrap rates • Employee motivation • Employee training	• Reduction of scrap rates • Improvement of machine availability • Reduction of cycle time.	• Employee motivation • Reduction of production costs • Increase in marketing efforts • Reduction of scrap rates.	• Rethinking purchasing procedures • Reduction of production costs • Reduction of scrap rates • Increase in marketing efforts.	**Large scale customers**
• Reduction of scrap rates • Employee motivation • Reduction of cycle time • Reduction of production costs • Improvement of machine availability.	• Reduction of scrap rates • Reduction of cycle time • Improvement of machine availability.	• Employee motivation • Increase in marketing efforts • Reduction of scrap rates • Reduction of production costs.	• Rethinking purchasing procedures • Increase in marketing efforts • Reduction in production costs.	**Small scale customers**

Phase Three: Identification of intervention projects

On the 7th of November 1997, the author conducted a workshop on phase three activities. Phase three is made up of two stages; gap appraisal and identification of intervention projects.

Stage One. Gap appraisal

In this stage the team established the gap between what the organization has, and what it ought to have, in terms of the above key capabilities.

Stage Two. Identification of intervention projects

In this stage the team identified intervention projects that could help build up the key capabilities. In identifying these projects, the team answered the question: "What kind

of project will help realize this key capability?" The following intervention projects were identified.

Reduction of cycle time. The best projects to facilitate the reduction of cycle time were found to be Just In Time (JIT), Manufacturing Process Redesign (MPR) and Total Productive Maintenance (TPM).

Reduction of scrap rates. The best intervention project to help reduce scrap rates was found to be Total Quality Management (TQM).

Reduction of production costs. It was argued that production costs can be reduced through the implementation of Total Quality Management, Total Productive Maintenance and Manufacturing Process Redesign projects.

Employee motivation. It was established that it was necessary to implement a project titled: "The identification of factors that can lead to a motivated workforce".

Improvement of machine availability. It was argued that a Total Productive Maintenance project, might help improve machine availability.

Rethinking purchasing procedures. A project titled "Redesigning the procurement process" was proposed by the team to revamp the purchasing procedures. The meta set also decided to integrate this project into the JIT project.

Increasing marketing efforts. A project titled "Rethinking marketing practices" was identified. However, because no person from the marketing department was available, this project was not pursued.

Phase Four: Prediction

On the 21st of November the author conducted a workshop on prediction. Prediction was necessary to ensure that:

- There were no misperceptions of feedback that might result as a consequence of implementing the proposed intervention projects
- Those projects that cause misperceptions of feedback were not implemented
- The corporate goals of the division would be attained through the implementation of intervention projects.

The following activities were done in this phase

(a) Identification of the functions of each project

(b) Development of the influence diagram for the functions of each project

(c) Development of a grand influence diagram of the functions

(d) Linking the grand influence diagram to the corporate goals

(e) Prediction

Adding to the above activities, the meta set adopted a total process approach to prevent any misperceptions of feedback. The divisions were perceived to consist of two major processes; the current process for the existing product and the process for the new product development.

Identification of the functions of each project

Through a brainstorming exercise, the meta set produced the following list of the functions

TQM project

- Increase in employee morale
- Reduction in the defect rate
- Decrease in rework rate
- Reduction in quality cost
- Improvement in on-time delivery
- Reduction in cycle time

JIT project

- Increase in employee morale

- Reduction in the work in progress
- Reduction in cycle time
- Reduction in inventory cost
- Improved space utilization

TPM project

- Increased work safety
- Improved machine availability
- reduction in defect rate
- Reduction in maintenance costs
- Increase in employee morale
- Improvement in capacity utilization

MPR project

- Reduction in employee morale
- Reduction in labour costs
- Reduction in cycle time
- Reduction of machine costs

The consequences of a motivated workforce include

- Increase in employee morale
- Reduction in absenteeism

Development of an influence diagram of the functions of each project

Figures A.1 through A.6 show the influence diagrams of functions developed by the members of the meta set. According to figure A.1, the implementation of a TQM project leads to a reduction in defect rate and the improved employee participation. The reduction in defect rate in turn leads to reduction in cycle time, improved customer satisfaction, reduction in quality cost and decrease in rework rate. The improved employee participation on the other hand, leads to increased employee morale, which in

turn leads to reduction in defect rate and renewed efforts in the implementation of the TQM project.

The implementation of a TPM project, shown in figure A.2, culminates in improved employee participation, improved machine availability, and improved machine capability. Again, improved employee participation leads to improved employee morale which in turn leads to reduced levels of absenteeism and improved capacity utilization. Improved machine availability leads to improved capacity utilization and reduction in maintenance costs.

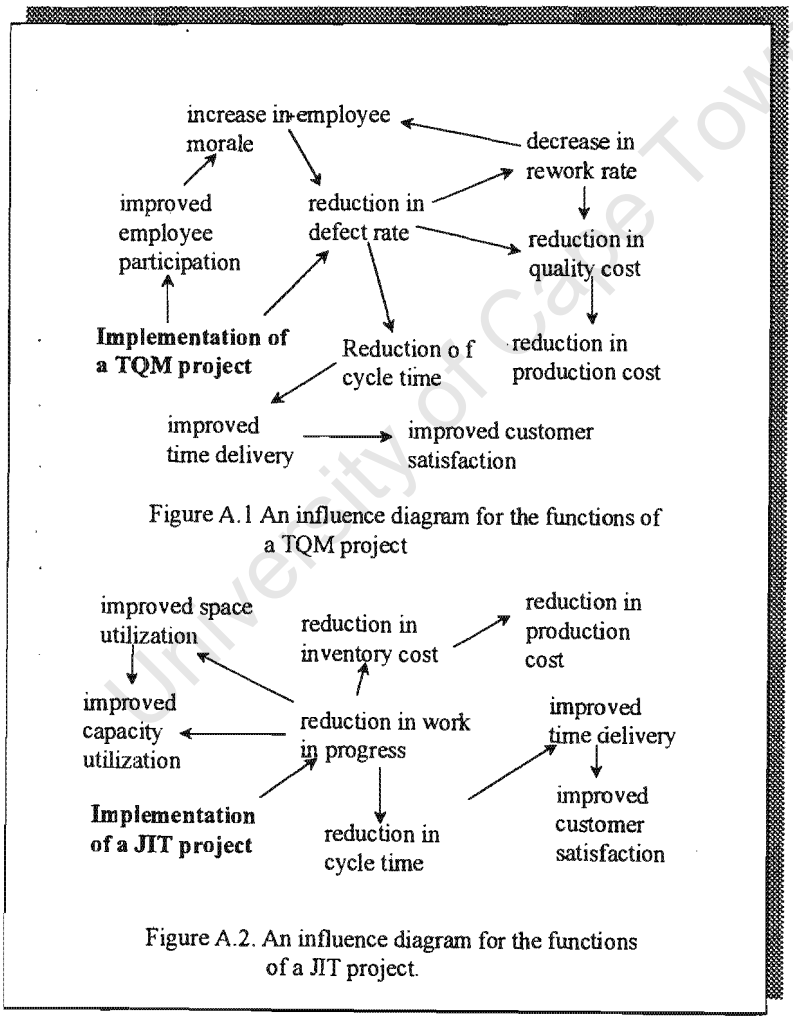

Figure A.1 An influence diagram for the functions of a TQM project

Figure A.2. An influence diagram for the functions of a JIT project.

Reduction in maintenance costs leads to reduced production costs. Improved machine operating capability on the other hand leads to a reduction in defect rate and increased work safety. Reduction in defect rate in turn leads to reduction in maintenance costs.

Increased work safety leads to reduction in maintenance cost and increase employee morale. The latter in turn leads to renewed commitment on the implementation of the TPM project.

In figure A.4, the implementation of a MPR project leads to downsizing and reduction of cycle time. Downsizing leads to increased labour disputes, decrease in employee morale, and reduction in labour costs. An increase in labour disputes leads to increase in absenteeism. Reduction in labour costs leads to reduction in production costs. Figure A.5 and A.6 can be described in the same manner.

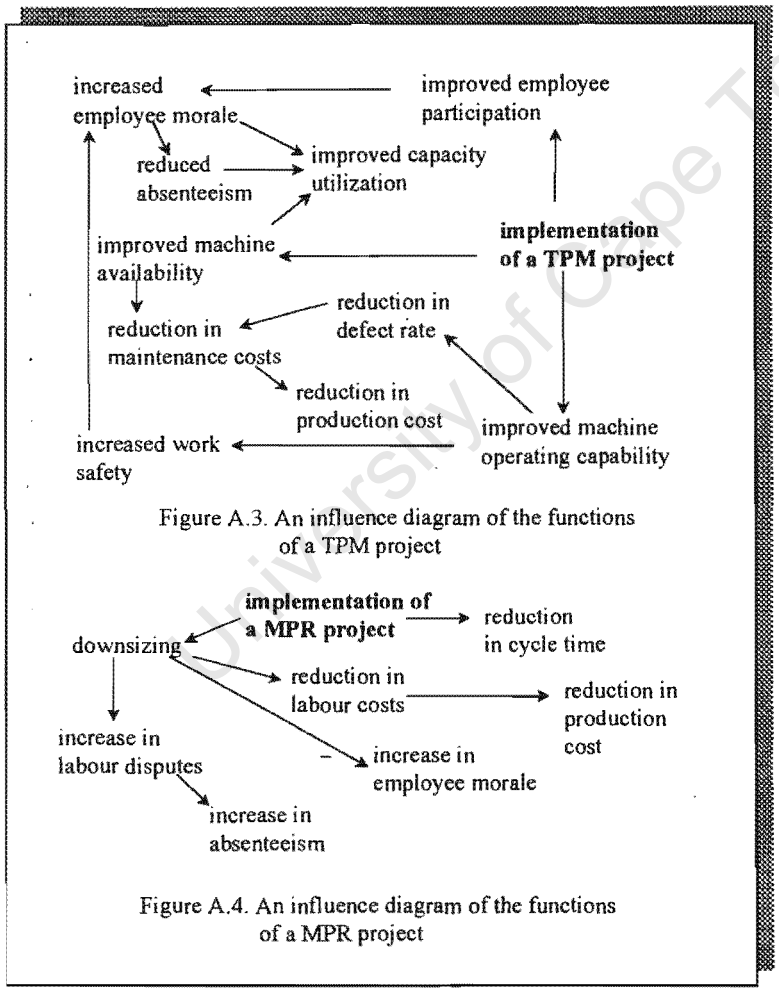

Figure A.3. An influence diagram of the functions of a TPM project

Figure A.4. An influence diagram of the functions of a MPR project

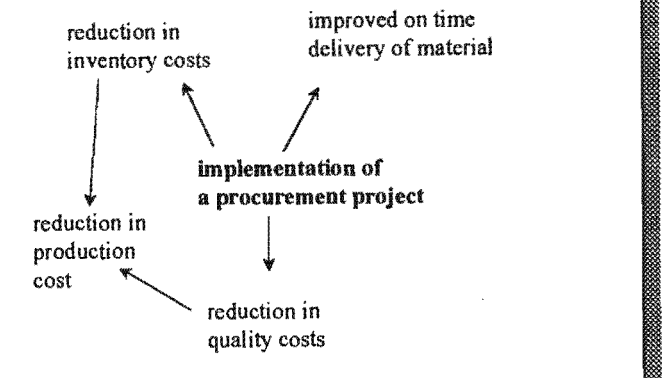

Figure A.5. An influence diagram for the functions of a procurement project

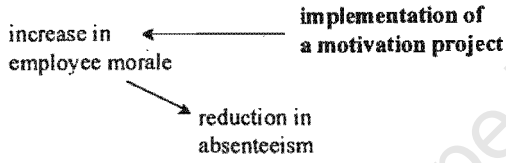

Figure A..6. An influence diagram for the functions of a motivation project

Development of an influence diagram of functions of all projects

Figure A.7 indicates an influence diagram of the functions of all projects proposed for implementation in the ABC division. Note that figure A.7 is obtained by merging the influence diagrams of the projects' functions shown in figure A.1 through A.6.

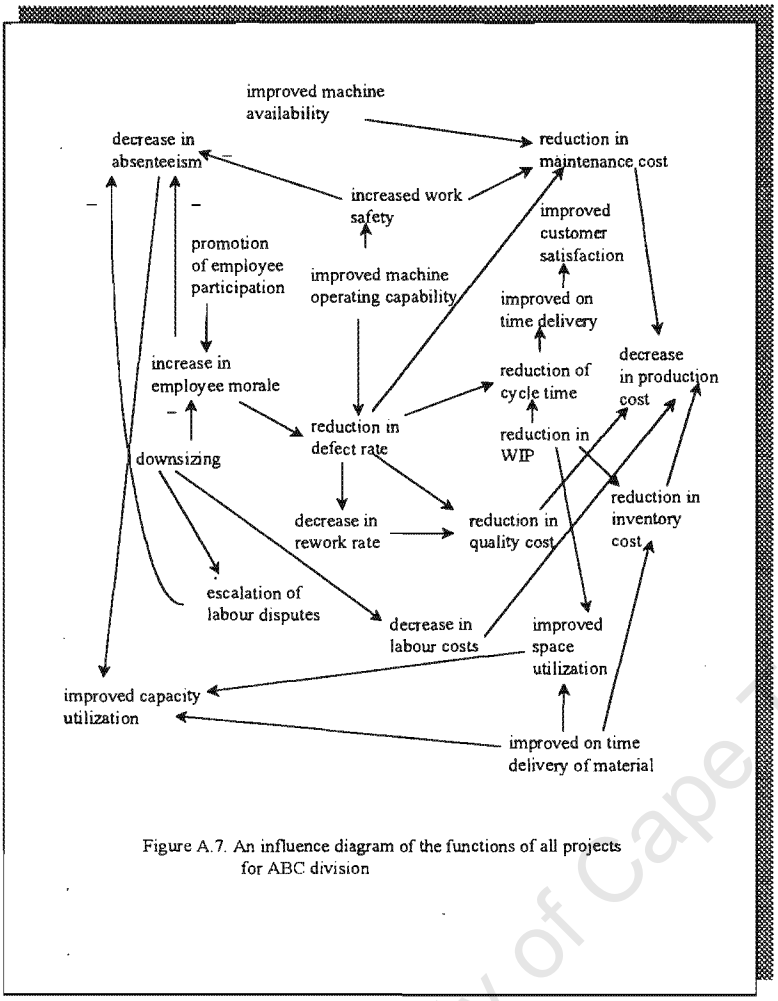

Figure A.7. An influence diagram of the functions of all projects for ABC division

Linking the influence diagram of all projects to the corporate goals

The meta set identified four interrelated corporate goals; improvement in productivity, increase in profitability, growth in market share and improvement in the quality of life of employees. Figure A.8 exemplifies an influence diagram showing the influence of projects on the four corporate goals. The goals are shown in bold.

Prediction

Figure A.8 was the centre of the prediction exercise. On the basis of this diagram, the meta set observed that the implementation of TQM, TPM, JIT and motivation projects have positive consequences on all the four goals.

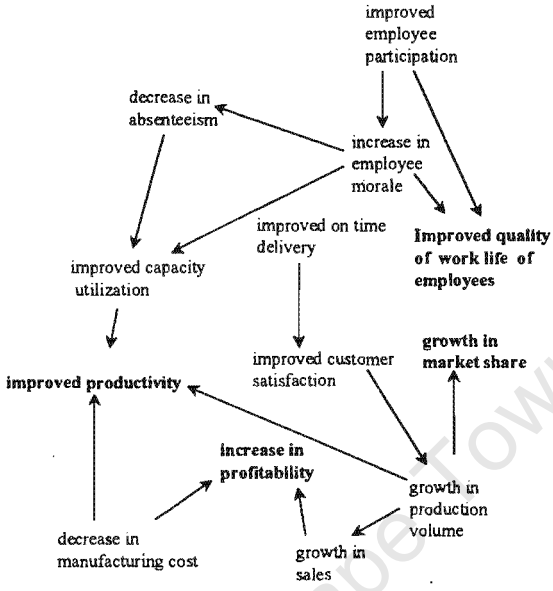

Figure A. 8. The influence of projects on corporate goals for division ABC.

However, the following emerged from the prediction exercise:

- The implementation of MPR leads to downsizing which in turn leads to decrease in employee morale, and possible escalation of labour disputes. Both increase in absenteeism and decrease in employee morale lead to the deterioration of capacity utilization, which in turn negatively affects productivity. Moreover, the decrease in employee morale negatively affects the quality of work life of employees. However, though downsizing decreases labour costs, since the division was capital intensive, the decrease in labour costs might have had a small effect on the reduction of production costs. Because of the negative consequences on productivity and the quality of work life of employees, the meta set decided not to implement the MPR project.
- The growth in market share, productivity, and profitability would have been improved to a greater extent if the rethinking of marketing practices projects had

also been implemented. This is beacsue such a project would have increased demand for ABC products, leading to growth in production volume. The growth in production volume would have improved productivity and increased sales, and increased sales would have led to an increase in profitability. However, as pointed out earlier, the marketing project was not implemented because no participant from the marketing department was available.

Phase Five: Design of intervention projects

In the design of intervention projects the following activities were undertaken by the members of the meta set.

Identification of implementation structure

The identification of a structure requires the identification of members of the set and the linking of the set to the meta set. The exercise also requires the integration of the meta set into the division's functional structure.

Identification of set members.

The members of the meta set were line supervisors who supervised shop floor workers. The line supervisors therefore identified some of the shop floor workers from almost every departments of the division, to be included in the sets.

Linking the sets to the meta set.

A matrix structure was found appropriate for creating a link between the meta set and the sets. At the level of the set, the line supervisors assumed the role of set facilitators. For the ABC division, there were five sets working on a Total Productive Maintenance project, a Total Quality, a Just In Time, and a motivation, project. The matrix structure adopted for the ABC division is shown in figure A.9.

Identification of processes

The meta set decided to adapt Schneiderman's half-life improvement framework, (Schneiderman, 1988) as a process for the implementation of the Total Quality

Management project. The adapted framework is shown in figure A.10. Processes for the Just In time, Total Productive Maintenance, and motivation projects identified by the meta set are shown in figure A.11 through A.13 respectively.

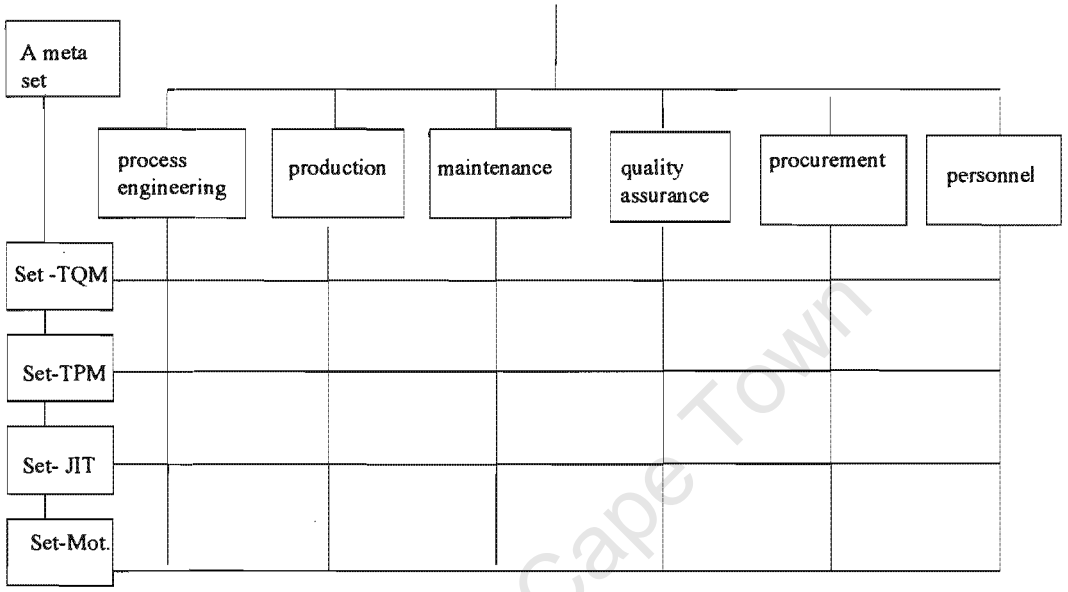

Figure A.9. A matrix structure for the excution of ABC division projects

The framework for TPM was adapted from Nakajima (1988) and that of JIT was from Sepehri (1986). The framework for improving motivation was adapted from the work of Schneiderman (1988) and that of Herzberg (1968).

Identification of evaluation criteria

The following evaluation criteria were identified by the meta set

- improvement in overall productivity
- improvement in profitability
- improvement in market share
- improvement in employee satisfaction
- reduction in absenteeism

The last two criteria are related to the quality of working life of employees. The task of identifying detailed evaluation criteria for projects was left to the set members.

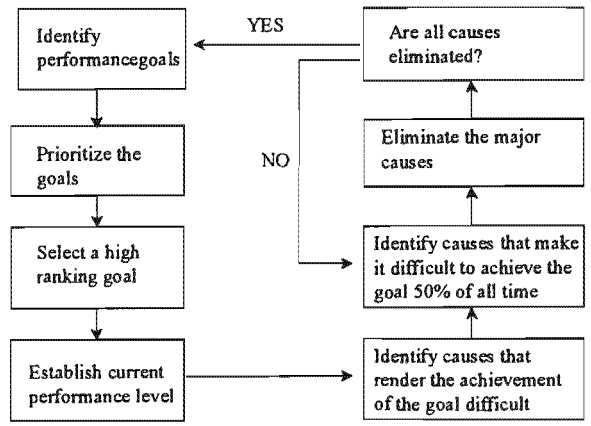

Figure. A.10. A framework for implementing a TQM project.

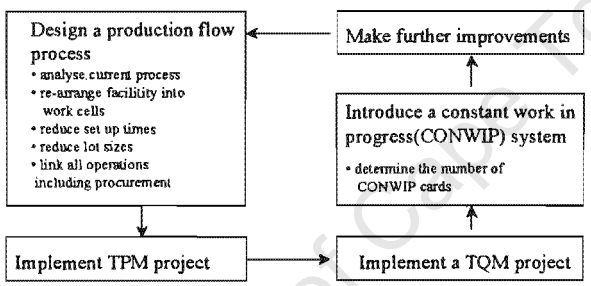

Figure. A.11 A framework for implementing a JIT project.
Adopted from Sepehri (1986)

Preparation of a schedule for implementation

The meta set agreed on the timing for the implementation and evaluation of each project. A bar chart was produced indicating when each project was to be implemented and the duration of implementation. The meta set agreed to start implementing a TPM, followed by a TQM project. Once these two were implemented, a JIT project would then be implemented, followed by a motivation project. Each project would take approximately three months to implement.

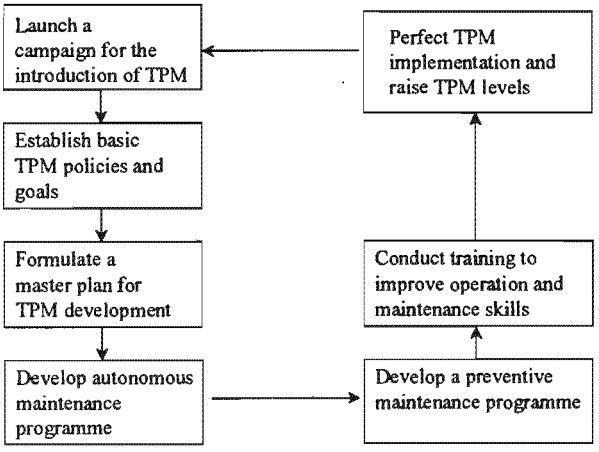

Figure. A.12. A framework for implementing a TPM project.

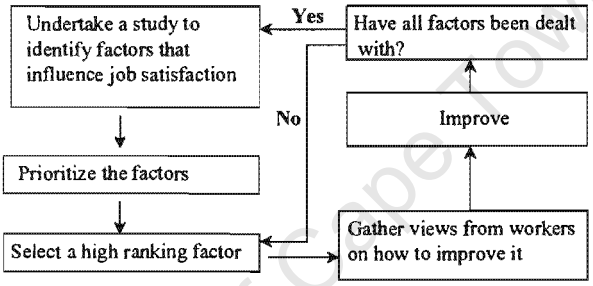

Figure. A.13 A framework for implementing a motivation project.

Phase Six: Identification of inhibitors of successful intervention

As mentioned in chapter seven, the inhibitors of successful intervention might be related to ideological power and/or personal power. To uncover such inhibitors, the meta set adopted an approach similar to Ulrich's check list of boundary questions, (Ulrich, 1987). Two groups of questions were used; questions that address what really took place and questions that focus on what should have taken place (please refer to chapter seven). To identify the inhibitors, a comparison between what really occurred, and what was supposed to happen, was made. All phases of the methodology were scrutinized with the help of these questions. If what really took place differed from what should have taken place in each phase, such a difference was considered as an inhibitor of intervention efforts.

To explore inhibitors related to ideological power, the meta set focused on the nature of management practices adopted throughout the various phases of the methodology. For inhibitors related to personal power, the meta set paid attention to the nature of expertise, authority and resources required, again, throughout the phases of the methodology. The questions used can be seen in chapter seven. Table A.4 indicates a list of answers given by the members of the meta set, to some of the above questions.

Based on table A.4, the following inhibitors were identified

- The IBIM cannot produce successful results because of the nature of participants in the intervention process. Having line supervisors as participants may result in poor quality of assumptions and data.
- Having line supervisors as participants may make the implementation of projects difficult. This is because most of them have limited personal power in terms of authority hence, limited access to resources.
- Lack of representation by other stakeholders such as customers, the department of trade and industry, regulatory bodies, suppliers and trade unions negatively affects the quality of data and assumptions and hence, may prevent the IBIM from producing successful results.
- Focusing solely on operation improvement projects and neglecting other types of improvement project that are strategic in nature, such as marketing may also cause the intervention not to produce successful results.

Phase Seven: Identification of influencing factors for the inhibitors

The members of the meta set identified the major cause of the above inhibitors as excessive devotion by the division, to performance improvement through the dimension of internal organizational processes, and neglect of organizational design, culture, external organizational processes, and even organizational politics. Coupled to this, a tendency to focus on single loop learning at the expense of other levels of learning was also cited as a cause for the inhibitors. It was noted that the division does not practice double loop or deutero learning (Argyris *et al*, 1978).

Table A.4. What took place and what should have taken place.

Question	Phase	What took place	What should have taken place
One	One	• Top management of the division delegated the responsibility of nominating members of the meta set to middle managers.	• Top management was supposed to identify members of the meta set. This would have paved the way for the inclusion of some of the middle managers as members of the meta sets.
Two	One	• In this case the participants were middle managers such as the factory manager, quality assurance manager, process engineer, maintenance engineer and the manpower development officer.	• Senior managers including the MD were supposed to participate directly in the selection of the members of the meta set.
Three	One	• Through consultation the middle managers were able to identify members of the meta set from their respective departments. Since this was considered as a one-time job, the relationship between middle managers and members of the meta sets was not well defined.	• Since the implementation of the IBIM is continuous in nature, the structural relationship between people who select tthe meta set and the meta set itself should have been defined.
Four	One	• The middle managers assumed that the division's performance could be improved by implementing operation improvement methodology. This could easily be handled by line supervisors.	• The middle managers could have assumed that what should be done in order to improve performance must be part and parcel of the improvement efforts.
Two	Two	• Line supervisors were the participants and thus members of the meta set.	• Top managers, middle managers, regulatory bodies, customers and shareholders should have participated.
Seven	Two	• Line supervisors had few resources in terms of level of education.	• A higher level of education and exposure on how industry forces determine the fate of organizations and in particular the ABC division was very necessary.
Four	Three	• Line supervisors assumed that performance improvement can be achieved through the improvement of operations.	• Improvement can be realized by first, identifying the kind of project needed followed by implementation of the project.
Two	Four	• Line supervisors were the participants.	• Top and middle managers were also supposed to participate in this phase.
Five	Five	• Line supervisors had hands-on expertise on the execution of day to day supervisory activities including the implementation of operational improvement projects.	• Expertise on how to design and implement any kind of intervention project was needed.
Six		• The participants possessed supervisory authority.	• More than supervisory authority was needed. At least a middle management authority would have been adequate.
Seven		• Due to their position in the structure, the line supervisors did not posses the required resources, particularly time, to implement the projects.	• Adequate resources in terms of time and money should have been made available.

Table A.4 continues.

Question	Phase	What took place	What should have taken place
Eight	Five	• Commitment of middle and top management was taken as an assurance of the availability and ownership of resources and authority by the participants	• The meta set should have been incorporated into the division's structure as a guarantee for the ownership of resources by the meta set

For instance, making line supervisors the sole participants was based on the assumption that only operation improvement projects, which comprise focus on organizational processes, were needed. Similarly, lack of involvement from other stakeholders such as customers, regulatory bodies and stockholders, in the implementation of the IBIM, was caused by the division's tradition of not taking a wider picture of its performance problems, and its belief that performance problems can be solved from within. This is a misleading culture because involving suppliers for instance, of steel and Aluminium would have helped the division sort out its manufacturing cost problems.

It was also discovered that the reluctance to implement a business process reengineering project, was based on the assumption that such a project is normally coupled with a reduction in employee motivation. This is because of the belief that such projects always lead to downsizing. Whilst this assumption might be true when the traditional approach to reengineering is adopted, it is also possible to implement this project without negatively affecting employee motivation. It was therefore concluded that

- The division should abandon the assumption that performance improvement means operations improvement
- The division needs to take a wider picture by involving various relevant external stakeholders in dealing with its performance problems
- The division needs to implement reengineering projects such as MPR without negatively affecting employee motivation.

Phase Eight: Implementation of the IBIM.

Implementation of the projects was supposed to be undertaken at the level of sets. Although the facilitator was not involved in this phase of the methodology, it was understood that implementation was supposed to be undertaken according to the recommendations given in phase five, and after sorting out problems raised in phase seven.

Phase Nine: Evaluation of the IBIM.

As with the implementation phase, the evaluation phase was supposed to be done according to recommendations given in phase five, after sorting out problems raised in phase seven.

A.5.1.3 Application of IBIM to the XYZ division

Phase Two: Scenario construction and identification of competing capabilities.

Stage One. Scenario construction

Identification of time frame and scope

The meta set through brainstorming technique, chose a three year time frame. A much longer time frame was not chosen because:

- Pressure was mounting from headquarters for the division to make profits and in doing so, to convert the foundry to World - Class standards in the shortest possible time.
- There was a growing pressure from management to implement ISO 9002 quality standards. It was required to establish whether these standards were necessary.
- There was a growing need to enter the South American markets as soon as possible.
- The local demand for aluminium cylinder heads and manifolds was shrinking.
- The division wanted to create a mult-skilled work force as soon as possible.

Like division ABC, division XYZ found it difficult to choose a time frame of less than three years because the division was not willing to change the technology used, so three years appeared to be optimal. On the identification of scope, the meta set for division XYZ through a brainstorming exercise reached the following conclusion

- Technological scope:
  - The main raw material to be used will be sand and Aluminium ingots
  - The production process will include the use of robots for gravity dies
  - High frequency electric furnaces will be used.
- Product scope:
  - Production of aluminium cylinder heads and manifolds for motor vehicle components.
- Geographical scope:
  - Marketing the above products to both the local and South American markets.

Identification of stakeholders

The meta set identified customers, suppliers of raw materials particularly sand and Aluminium ingots, trade unions, Government, shareholders, employees, and competitors as stakeholders.

Identification of corporate goals

The vision of XYZ division for the next ten years read:

- XYZ is a world class tier - one supplier of machine engine components with customers on five continents. We have:-
  - An inspired and empowered multi cultural work force
  - A simple and highly effective management system
  - Equipment and appropriate technology to compete with the most cost effective plants in the World
  - The R&D capability to support our customers

The mission of the XYZ was to be the manufacturer of Aluminium castings and the machining of power train components for the global automotive markets. This is achieved profitably by:

- Involving, training and enabling all employees to contribute to their fullest potential through people supportive practices.
- The adaptation of a systematic approach to identify and eliminate all waste, and non value adding activities, through continuous improvement of all products and services.
- Planning and executing all activities with a TQM mindset.
- Objectively measuring results and taking corrective actions based on facts.

On the basis of the above vision and mission statement, the meta set created the following corporate goals:

- To improve production efficiency. This was later perceived as improvement in productivity
- To ensure customer satisfaction
- To promote employee development. This was also perceived as improvement in the quality of work life of employees.
- To improve profitability

Identification of basic trends

As mentioned before, basic trends comprise existing conditions that will significantly affect the future of motor vehicle industry. The meta set identified the following trends with their corresponding nature of impact on the existing wellbeing of the division.

Trends	Nature of impact
The local demand of motor vehicles from customers is decreasing	Very negative
Unemployment will increase	Negative
Absenteeism will increase	Very negative
Suppliers' price of material will continue to be low	Positive
Suppliers' quality of material will continue to be poor	Negative
There will be an increase in local competition	Very negative

Identification of uncertainties

Again, as mentioned before, uncertainties are trends, which are difficult to establish with certainty. What the meta set did, was to assign measures such as low, high, very

high or weak, moderate, and strong to signify the degree of occurrence. The meta set identified the following uncertainties with their corresponding nature of impact on the health of the division.

Uncertainty	Degree of implementation	Nature of impact
The division will penetrate international markets	No penetration	Negative
	Moderate penetration	Positive
	High penetration	Very positive
Government to increase import taxes for imported motor vehicles	No increase	Negative
	Slight increase	Positive
	High increase	Very positive
Trade unions will be hostile to management	Good relation	Very positive
	Bad relation	Very negative

Scenario construction

As mentioned earlier, scenarios are constructed by merging basic trends and uncertainties that exert similar impact on the performance of the organization. Four scenarios were constructed. These were: very optimistic, optimistic, pessimistic, and very pessimistic.

Very optimistic scenario. In this scenario there will be a high penetration of international markets worldwide, accompanied by a high increase by Government of import taxes on motor vehicles from abroad. The relationship between management and trade unions will also be good.

Optimistic scenario. In this scenario the price of raw material will continue to decline and there will be a moderate penetration of international markets, particularly those in South America. The import taxes on motor vehicles from abroad will be increased slightly by the Government, thus discouraging the importation of such vehicles.

Pessimistic scenario. In this scenario, the unemployment rate in the country will continue to increase, negatively affecting the purchasing power of potential customers. The quality of raw materials from suppliers will also continue to be poor. There will be no penetration of international markets and the Government will not increase the import tax on motor vehicles that are purchased from abroad.

A very pessimistic scenario. In this scenario, the demand for motor vehicles from local customers will continue to decrease. Absenteeism will continue to increase, paving a way for bad relationships between the trade unions and management. Competition from other local manufacturers will also continue to increase.

Stage Two. Identification of strategic segments

As mentioned earlier, strategic segments are battlefields in which the organizations might be competing. They signify the nature of customers to be served, the nature of products, the kind of competitors and strategies adopted and the type of distribution channels used. The XYZ division meta set identified two categories of customers; local customers and international.

Stage Three. Identification of key competing capabilities

Capabilities refer to a firm's ability to deploy resources to achieve desired ends. To facilitate the formulation of required capabilities, the following question was answered by the team: *If this scenario turns out to be true as far as this strategic segment is concerned, what capabilities are needed so that the corporate goals can still be attained?* The capabilities shown in the cells of table A.5 were identified.

The capabilities with the number of times they appear in the table are as follows

- High conformance quality (5)
- High production efficiency (4)
- Effective marketing (4)
- High machine availability (3)
- Effective R&D (3)
- Effective purchasing (2)
- Good relations between unions and management (2)
- Skilled workforce (1).

The team identified the following capabilities as key capabilities

- High conformance quality
- High production efficiency

- Effective marketing
- High machine availability
- Effective R&D.

Table A.5. Identified division capabilities

Very optimistic Scenario	Optimistic Scenario	Pessimistic scenario	Very pessimistic scenario	Strategic segments
• High production efficiency • High machine availability • High conformance quality • High skilled workforce	• high production efficiency • high machine availability • high conformance quality	• effective purchasing procedures • high production efficiency • effective marketing	• effective marketing • effective R&D • improved trade union and management relations	**International customers**
• high conformance quality	• high conformance quality • high production efficiency • high machine availability.	• effective purchasing procedures • effective marketing • effective R&D • high conformance quality	• effective R&D • effective marketing • improved relations between trade union and management	**Local customers**

Phase Three: Identification of intervention projects.

On the 7th November 1997, the author conducted a workshop on phase three activities. As mentioned earlier, phase three is made up of two stages; gap appraisal and identification of intervention projects.

Stage One. Gap appraisal

In this stage the set established the gap between what the division has, and what it ought to have, in terms of the above key capabilities.

Stage Two. Identification of intervention projects

In this stage the team identified intervention projects that could help build up the key capabilities. In identifying these projects, the team answered the question: "What kind of project will help realize this key capability?" The following intervention projects were identified:

High conformance quality. The best intervention project to help reduce scrap rates was found to be Total Quality Management (TQM) and Just In Time (JIT).

High production efficiency. It was decided that production efficiency can be achieved through the implementation of Total Quality Management, Total Productive Maintenance and Just In Time (JIT).

High machine availability. It was agreed that a Total Productive Maintenance can help improve machine availability.

Effective marketing. It was established that it was necessary to implement a project titled: "Improvement of marketing practices". But, because there was no participant from the marketing department, this project was dropped.

Effective R&D. A project titled "improvement of new product development effectiveness" was proposed by the set. Again, because there was no participant from the R&D department, this project was also dropped.

Phase Four: Prediction

On the 21st of November the author conducted a workshop on prediction. As mentioned previously, prediction was necessary to ensure:

- That there were no misperceptions of feedback that might result as a consequence of implementing the proposed intervention projects
- That those projects that cause misperceptions of feedback were not implemented

- That the corporate goals of the division would be attained through the implementation of intervention projects.

The following activities were executed in this phase:

(a) Identification of the functions of each project

(b) Development of the influence diagram for the functions of each project

(c) Development of a single influence diagram of the functions of all projects

(d) Linking the influence diagram of the functions of all the projects to the corporate goals

(e) Prediction.

The meta set also decided to take a total process approach, to ensure that the existing product process and the new product development process would have the same levels of technical and organizational complexity. This is an additional measure expected to prevent misperceptions of feedback, as identified by Sterman *et al* (1994).

Identification of the functions of each project

Functions of TQM, TPM and JIT projects, identified earlier by the members of the meta set of ABC division, were also identified by members of the meta set of the XYZ division.

Development of an influence diagram of the functions of each project

Again, influence diagrams for TQM, TPM and JIT projects developed by the meta set of ABC division were also similar to those developed by members of the meta set of the XYZ division.

Development of an influence diagram of the functions of all projects

Figure A.14 shows the influence diagram of the functions of the three projects.

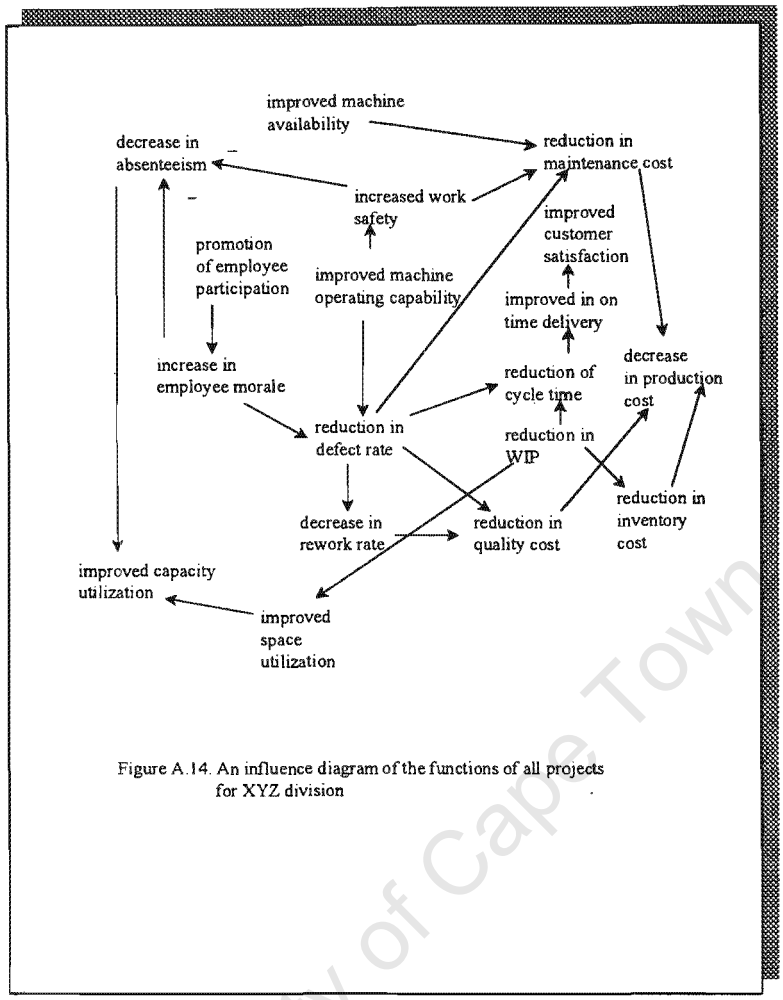

Figure A.14. An influence diagram of the functions of all projects for XYZ division

Linking the influence diagram of the functions of all projects to corporate goals

Figure A.15 indicates how the functions of the three projects influence the corporate goals of the XYZ division.

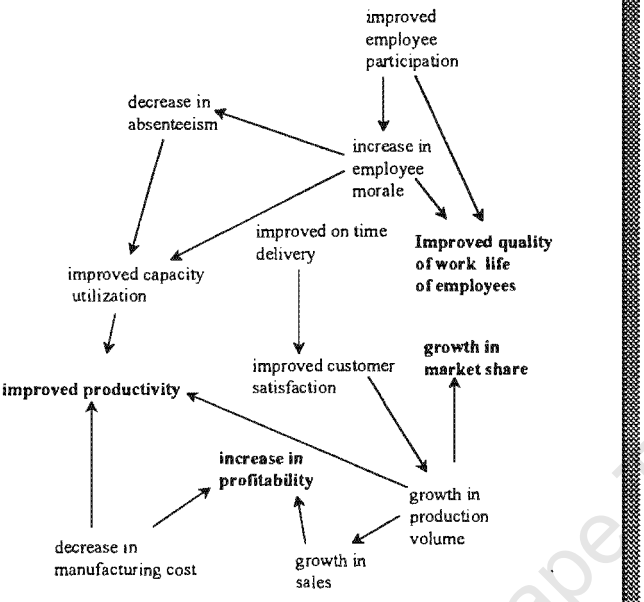

Figure A.15. The influence of projects on corporate goals for division XYZ.

Prediction

From figure A.15 it is apparent that all the three projects contribute positively to the improvement of the corporate goals. Since the marketing and R&D projects were not implemented and hence, their functions not included, the overall impact on performance improvement was rather low. Both marketing, and R&D projects, were supposed to increase demand for products, leading to growth in number of products produced and improved productivity. Note also that the growth in number of products produced leads to increased sales, leading to increase in profitability.

Phase Five: Design of intervention projects

In the design of intervention projects, the members of the meta set of XYZ division adopted a similar approach to that of ABC division.

Identification of structure

Identification of set members

The members of the meta set were line supervisors who supervised shop floor workers. The line supervisors therefore identified some of the shop floor workers from almost every department of the division to form sets.

Linking the sets to the meta set

A matrix structure was found appropriate for creating a link between the meta set and the sets. At the set level, the line supervisors acted as set facilitators. For the XYZ division, there were three sets; a set working on a Total Productive Maintenance, a Total Quality, and a Just In Time, project. The matrix structure adopted for the XYZ division is shown in figure A.16.

Identification of implementation processes

Again, the the meta set for XYZ division identified to those processes identified by the ABC division for TQM, TPM and JIT projects.

Identification of evaluation criteria

A similar evaluation package to that of the ABC division, for the TQM, TPM, and JIT project, was also adopted by the XYZ division.

Preparation of implementation schedule

A similar implementation schedule to that of the ABC division for the TQM, TPM, and JIT projects was also, adopted by the XYZ division. First, the TPM project was to be implemented followed by TQM and JIT, in that order.

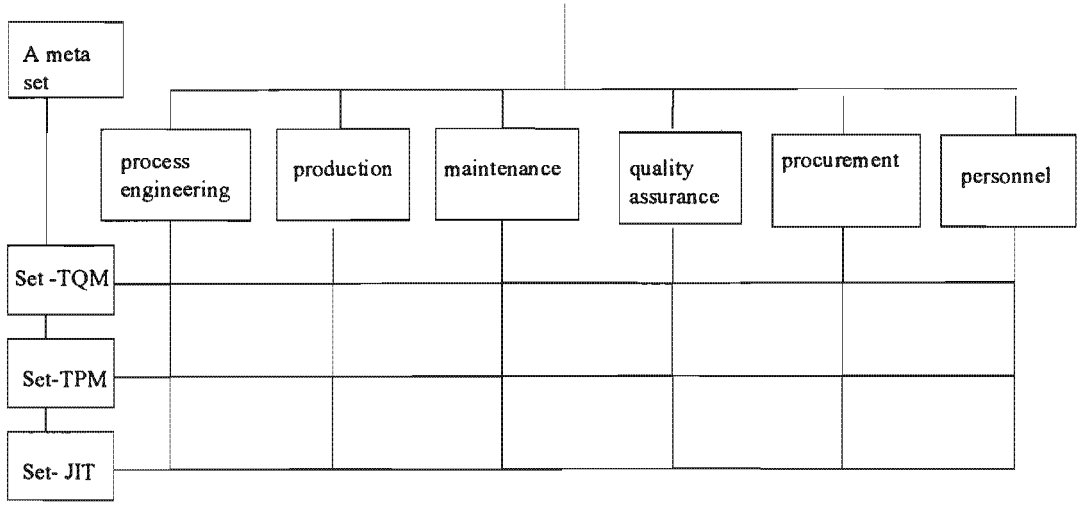

Figure A.16. A matrix structure for the execution of XYZ division projects

Phase Six: Identification of inhibitors of successful intervention

Most of the inhibitors identified by the meta set were similar to those identified by the ABC division meta set (please see phase six of the methodology for the ABC division).

Phase Seven: Identification of influencing factors for the inhibitors.

The meta set noted that

- There is a need for the XYZ division to adopt a wide perspective through the involvement of other stakeholders such as management, trade unions, the Department of Trade and Industry, suppliers and customers, in undertaking phase two, three and four of the methodology.
- The division needs to abandon the assumption that performance improvement is limited to operations improvement.

Phase Eight: Implementation of the IBIM

This was done in a similar manner to that of division ABC (please see phase eight of the methodology for division ABC).

Phase Nine: Evaluation of the IBIM

See phase nine of the methodology for division ABC.

A.6 Conclusion

The objective of this chapter was to make use of the IBIM to improve the performance of a business organization. The chapter has shown how the IBIM was used to improve performance in two divisions of a manufacturing company producing motor vehicle components in South Africa.

In order to ensure effective intervention it was found necessary first, to appreciate the broader environment in which the divisions are operating. In particular it was important to acknowledge performance problems facing the manufacturing industry as a whole. Once this was achieved the chapter, then, delved to a much lower level; the motor vehicle sector, which is one of the sectors in the manufacturing industry. Once the motor vehicle component sector was appreciated, the discussion was then confined to one company in the motor vehicle sector, one that manufactures motor vehicle components.

The need to apply the IBIM to tackle performance problems was based on the belief that the adequacy of a theory and methodology are normally enhanced through both structural and multiplicative corroboration; through corroboration of fact with fact and man with man (Pepper, 1942). While chapters five through seven are mainly influenced by structural corroboration, this chapter is influenced by multiplicative corroboration. Multiplicative corroboration helped to improve the adequacy of both the theory and the methodology developed in this thesis, as will be shown in chapter nine.

9. References

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